Lingue dei segni e sordità 1

A Grammar of Italian Sign Language (LIS)

edited by
Chiara Branchini and Lara Mantovan

Edizioni
Ca'Foscari

A Grammar of Italian Sign Language (LIS)

Lingue dei segni e sordità

A series edited by
Anna Cardinaletti, Sabina Fontana

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Introduction

Presentation

A Grammar of Italian Sign Language (LIS) is a comprehensive presentation of the grammatical properties of LIS. It has been conceived as a tool for students, teachers, interpreters, the Deaf community, researchers, linguists and whoever is interested in the study of LIS.

It is one output of the Horizon 2020 SIGN-HUB project and it follows the *SignGram Blueprint*, the first comprehensive guide to sign language grammar description. The *SignGram Blueprint* (link `https://www.degruyter.com/view/product/467598`), is a Manual guiding language specialists and linguists writing reference grammars of sign languages. It is the output of the *SignGram* COST Action "Unraveling the grammars of European sign languages: pathways to full citizenship of deaf signers and to the protection of their linguistics heritage", Action IS1006 (2011-2015), it has been implemented on the SIGN-HUB platform and is available in open access.

Within the SIGN-HUB project, several grammars have been created for other sign languages (Catalan SL, Dutch SL, French SL, German SL, Spanish SL, Turkish SL) in addition to this one, and the goal is that further sign languages will join the repository with new grammar descriptions.

A Grammar of Italian Sign Language is composed of a Table of Contents and six Parts: Part 1 is devoted to introducing the social and historical background in which the language has developed, and the remaining five Parts cover the main properties of Phonology, Lexicon, Morphology, Syntax and Pragmatics.

Thanks to the electronic format of the grammar, text and videos are highly interconnected, therefore this is not a traditional book, but a hybrid product which is designed to fit its content, namely, the description of a visual language. After the introduction, the reader will find a list of abbreviations and conventions used for glossing the examples, including the ones that are linked to a video.

In what follows, we first explain the motivation that led us to write a digital grammar of LIS, we then provide information on the methodological choices guiding the writing as well as indications on how the grammar is composed and how it can be used. We conclude the introduction by presenting SIGN-HUB, the wider project that enabled the realisation of the LIS grammar, together with other six sign language grammars.

Goals and coverage

Despite the great advances in sign language research registered in the last decades in Italy (and abroad), a comprehensive description of the grammar of LIS is still lacking.

The lack of a complete descriptive grammar has negative effects on different domains of the life and education of the Deaf community. A direct drawback is the lack of tools that enable sign language teachers to provide rich and detailed information on LIS to deaf students, to students learning LIS as a second language, but also to professionals training to become interpreters. This lack also affects researchers investigating LIS and its typological relations to other spoken and sign languages. Moreover, a detailed description of the LIS grammar will favour the development of diagnostic tests able to assess language impairment and language pathologies, which in turn can help therapists who need to assess language competence.

This grammar incorporates the results of previous research and adds new research on some topics, however, it is by no means a complete description of LIS. Some sections are void of content, either because there is not enough research or because the specific topic does not apply to the LIS grammar. In general, *A Grammar of LIS* contains sections and topics that have received more attention and others that need to be further investigated and for which only an initial description is available. Moreover, not all examples are linked to a video. *A Grammar of LIS* has, however, many visuals: 1,541 video examples and 712 still images.

Far from being a final product, this grammar aims at encouraging other researchers and language professionals to take up the challenge of enriching it in a collective effort, thus contributing to advances in the personal, social and political sphere of the Deaf (and hearing) community.

Access to the *Grammar* requires a general knowledge about grammar and grammatical terminology, but basic concepts are explained in a glossary and in the text as well. The *Grammar* intends to be accessible to a general reader, in particular through the extensive use of visual examples (videos and pictures), which the digital format of the grammar allows.

In this sense, as a digital and on-line product, *A Grammar of LIS* radically differs from other, more traditional grammars since it provides hundreds of visual examples.

Methodological choices

The grammar has been written by a team of senior and junior researchers (six hearing and one deaf, five women and two men) at Ca' Foscari University of Venice and at the University of Milan-Bicocca with the essential contribution of seven Deaf consultants participating to the discussion of the data and the making of the visual examples. The writing has been accomplished over 4 years, thanks to the SIGN-HUB project.

The authors have a background in formal linguistics. While the theory has guided the description of the linguistic phenomena contained in the grammar, the language employed to describe them is not technical, as the intended users of this grammar are not (only) professionals working in the field of linguistics. However, as we mentioned, we assume familiarity with basic notions and grammatical concepts specific to sign languages.

Although the grammar has many authors, we made an effort to adopt a homogenous style. Together with the authors of the sign language grammars created within the SIGN-HUB project (see below), we agreed on some guidelines. As a general rule, we tried to write concrete, simple and easy to read descriptions. For example, we agreed on the use of the term 'sign' for the lexical unit of LIS, except for linear order facts and some prosodic and morphological descriptions where the expressions 'prosodic word', 'word order' and 'word internal' phenomena are employed. The term 'language channel' has been preferred to 'language modality' to avoid confusion with the grammatical term; 'spoken languages' has been preferred to 'oral languages'; while 'sign languages' has been used rather than 'signed languages'.

In writing *A Grammar of LIS*, we avoided to define linguistic terms, as they are present in the glossary at the end of the grammar, and to compare the phenomena observed in LIS with those present in other sign or spoken languages, as this is usually found in a Handbook, not in a grammar.

The structure of the Table of Contents follows the *SignGram Blueprint*, output of the Cost Action *SignGram* project, a tool for guiding language specialists writing reference grammars of sign languages. The adoption of the same structure and style for the seven sign language grammars produced within the SIGN-HUB project has the welcome outcome of allowing typological comparative studies of sign language grammars and encouraging fruitful contaminations. However, not all grammars contain the same amount of grammatical description. This is due to different reasons: (i) the numerosity of the team working on the task, (ii) the absence/presence of previous studies investigating grammatical phenomena, (iii) the impossibility to collect data for a set of properties or the lack of sufficient information to write a description of a section, (iv) some sections or subsections that had been thought to hold for some sign languages might not be relevant for all of them.

A Grammar of LIS, as all sign language grammars produced within the SIGN-HUB project, is written in English. This was a requirement of the European Union, which funded the project. While the English version of *A Grammar of LIS* allows foreign Deaf and hearing students, teachers, interpreters and researchers to access it, it may be an obstacle for Italian users. For this reason, the authors are planning to produce an Italian version of the present grammar.

How to use the grammar

Each Part of the grammar contains an introduction explaining the function of the linguistic component under investigation (e.g. Phonology) and the organisation of the Part. Each Part is composed of chapters organised in sections and subsections. Information on authorship, data and consultants is reported at the end of each chapter. At the end of the grammar, the reader can find: (i) an appendix containing the complete list of LIS handshapes and the labels we used to refer to them, (ii) a complete list of references to previous works in the literature on which the grammar is based, and (iii) a glossary of grammatical terms explaining basic concepts that are taken for granted in the text.

Typically, if there is a concept/term that is mentioned but not described in a section, an indication connects it to the section where it is explained. In other cases, the section where some properties (for example, lexical) of a phenomenon are discussed is linked to another section of the grammar where other properties (for instance, syntactical) of that phenomenon are addressed. This is also the reason why many topics are addressed and described in different parts of the grammar. Many of them have, in fact, clear relations to differ-

ent domains or can be described differently depending on what one aims at observing: its phonological (Phonology) or lexical description (Lexicon), its morphological modification (Morphology), its syntactic distribution in the sentence (Syntax), its use in the discourse and speech context (Pragmatics). Just to provide an example, negation can be observed from the point of view of the negative words employed to produce a negative sentence (Lexicon), their internal composition and modification (Morphology), or their distribution in the sentence (Syntax).

When relevant, information about the data gathered in order to produce the description is found at the end of the chapter. This is important because it might provide information about the particular variety represented in the description. Variation within the LIS community is well-known, but hardly studied, so this piece of information might help identify on which variation certain generalisations have been drawn.

We follow the decision taken in the *SignGram Blueprint* to devote an independent part to Pragmatics on an equal footing with other grammar components to promote the description and analysis of so far understudied domains of LIS grammar addressing, among other issues, discourse structure, figurative meaning, and communicative interaction. The reader may be surprised not to find a part on Semantics. However, the meaning component is not neglected in the grammar. It is discussed whenever the form that is associated to a specific semantic phenomenon is presented. For example, we discuss the meaning of subordinate clauses when we discuss their form, and not in a separate section.

The SIGN-HUB project

A Grammar of Italian Sign Language (LIS) is an output of *The SIGN-HUB project: Preserving, researching and fostering the linguistic, historical and cultural heritage of European Deaf signing communities with an integral resource* funded by the European Union's Horizon 2020 (2016-2020).

The project involved ten teams from seven countries (France, Germany, Israel, Italy, The Netherlands, Spain and Turkey) and has been designed by a European research consortium to provide an innovative and inclusive resource hub for the linguistic, historical and cultural documentation of the Deaf communities' heritage and for sign language assessment in clinical intervention and school settings.

To this end, we created an open state-of-the-art digital platform with customised accessible interfaces. The project initially fed the platform with core content in the following domains, expandable in

the future to other sign languages: (i) digital grammars of seven sign languages (Catalan SL, Dutch SL, French SL, German SL, Italian SL, Spanish SL, Turkish SL), (ii) an interactive digital atlas of linguistic structures of the world's sign languages, (iii) online sign language assessment instruments and clinical intervention, and (iv) the first digital archive of life narratives by elderly signers, subtitled and partially annotated for linguistic properties.

These components, made available for the first time through a centralised platform to specialists and to the general public, should (i) help explore and value the identity and the cultural, historical, and linguistic assets of Deaf signing communities, (ii) advance linguistic knowledge on the natural languages of the Deaf, and (iii) impact on the diagnosis of language deficits within these minorities.

The digital platform also contains a 40-minute documentary movie *We were there - we are here* including short fragments from the 137 interviews conducted in the context of the project, as well as fragments from previously existing materials (collected in France and Israel). The elderly signers coming from 7 countries (France, Germany, Israel, Italy, Spain, Turkey and the Netherlands) share their experiences from the past concerning personal relationships, work, education and historical events.

An edited volume *Our lives – our stories: Life experiences of elderly Deaf signers* will soon be published by De Gruyter Mouton (expected publication date January 2021). The volume, authored by SIGN-HUB members based on information collected during the interviews and by researchers from outside the project, offers a glimpse on the life experiences of Deaf elderly signers and on the social, political, historical and educational events characterising the 20th century in different countries. For more information on the SIGN-HUB project, the reader can visit the international (www.sign-hub.eu) or national (www.sign-hub.it) website of the project.

We hope that the seven sign language grammars freely accessible to the general public will contribute to a deeper understanding and knowledge of sign languages boosting the description and analysis of more sign languages of the world. We particularly hope that *A Grammar of Italian Sign Language* will inspire a more robust linguistic awareness in the Italian Deaf community, which will support the diffusion of their language and culture on the national territory. Hopefully, this will promote a deeper consciousness towards its neglected social and political rights and will contribute to the recognition of LIS.

List of abbreviations

In this grammar, the only abbreviation used to refer to a sign language name is LIS, which stands for Italian Sign Language. Below, we list the abbreviations used to refer to grammatical terms and non-manual markers.

Grammar-related abbreviations

AUX	auxiliary
CL	classier construction
COLL	collective
CONTRA	contralateral
DEF	definite
DEM	demonstrative
DISTR	distributive
EXCL	exclusive
INCL	inclusive
INDEF	indefinite
INT	intensive marker
IPSI	ipsilateral
IX	index, pointing sign
LOC	locative
PL	plural
POSS:	possessive
SASS	Size-And-Shape

Specifier Abbreviations of non-manual markers (based on the grammatical function)

COND	conditional
MARKER FOC	focus marker
NEG	negation marker
REL	relative clause marker
RS	role shift
TOP	topic marker
WH	wh- (content) interrogatives
Y/N	yes/no (polar) interrogatives

Abbreviations of non-manual markers (based on the form)

BL-B	body lean backward
BL-F	body lean forward
BL-LEFT	body lean to the left
BL-RIGHT	body lean to the right
BLOW	blowing out air
CD	chin down
CE	closed eyes
CU	chin up
EG	eye gaze
FE	furrowed eyebrows
GT	grinding teeth
HN	head nod
HS	head shake
HT-B	head tilt backward
HT-LEFT	head tilt to the left
HT-RIGHT	head tilt to the right
LP	lip protrusion
MD	mouth-corners down
MU	mouth-corners up
OM	open mouth
PC	puffed cheeks
RE	raised eyebrows
SC	sucked cheeks
SQ	squint
TL	teeth on the lower lip
TP	tongue protrusion we: wide-open eyes
WRN	wrinkled nose

List of conventions

In this section, we provide the list of the notation conventions used throughout the LIS grammar. In line with common practice in the field of sign language linguistics, the signs in the examples are represented by glosses in small caps. Below the string of glosses, the English translation is reported enclosed in single quotation marks. An example is shown below.

MARIA DOG HELP
'Maria helped the dog.'

If the example consists of one single sign and the gloss is transparent enough to infer its meaning, no English translation is provided. For illustrative purposes, each notation convention is associated with an example applicable to LIS.

Sign reduplication: if a sign is reduplicated, plus signs are added after the gloss.

Example
HOUSE++
'Houses'

Variant forms: if there are lexical variants of a sign, each variant is associated with a number included between brackets.

Example
PHONE(1)

Manual articulators: when the dominant hand (dom) and the non-dominant hand (n-dom) are used independently, the signing production of each hand is shown in a separate line

Example

dom: DOG
n-dom: IX
'The dog'

Temporal extention of signs: the duration of a sign is represented by adding a sequence of dashes after the relevant gloss.

Example

dom: DOG BEAUTIFUL
n-dom: IX----------
'The cute dog'

Non-manual markers: non-manuals are indicated by a straight line above the gloss(es). The extension of the line reflects the extension of the corresponding non-manual marking. Above the line, the abbreviation referring to the relevant non-manual is reported.

Example

wh
WHICH

Mouthing and mouth gestures: the approximate transcription is provided between square brackets and the approximate orthographic representation is given between single quotes.

Examples

[sss]
NOT_YET
'fresco'
FRESH

Fingerspelling: if hyphens are interpolated between letters, the gloss refers to a fingerspelled word.

Example

L-U-C-A

Multi-word glosses: if the gloss identifying a single sign requires two or more words in the glosses, an underscore is interpolated between words.

Example

NOT_YET
'Not yet'

Multi-morphemic signs: if a sign is composed by more than one morpheme (e.g. compounds, incorporation, cases of cliticisation), a circumflex accent is added between morphemes.

Example

MONTH^TWO
'Two months'

Compounds: if the internal composition of a compound is not relevant to the linguistic description, a gloss identifying the whole meaning of the compound is provided (e.g. computer instead of electricity^CL(5): 'type'). In simultaneous compounds, i.e. compounds in which each hand contributes a separate root, manual articulators are signalled by h1 and h2 included within brackets.

Example

CL(V): 'fork'(h1)^CL(5): 'dish'(h2)
'Fork'

Suppletive forms: if a sign is composed by more than one morpheme and the morphemes are not segmentable or identifiable, a dot is added in between.

Example

EXIST.NOT
'There is not'

Pointing signs: pointing signs are generally glossed as ix. If it functions as personal pronoun, the grammatical person is indicated by a subscript number after the gloss. If the pointing sign has another function (e.g. locative, demonstrative), this is indicated between brackets after the gloss.

Examples

IX_1
'I'
ix(loc)
'There'

Verbal agreement: the locations relevant to verbal agreement are indicated by subscripts.

Example

$_1help_2$
'(I) help (you)'

Handshape specification: if a sign is produced with a particular handshape that needs to be specified, the handshape is indicated between brackets after the gloss.

Example

$poss(G)_1$
'My'

Location specification: if a sign is produced in a particular location in the signing space, this is indicated as subscripts included in square brackets.

Example
ix(loc)$_{[ipsi\_distal]}$
'There'

Classifier constructions: the format representation for classifier constructions is CL(handshape): 'interpretation_in_English'

Example
CL(G): 'brush_teeth'
'Brushing teeth.'

Size-And-Shape Specifiers: the format representation for SASS is SASS(handshape): 'interpretation_in_English'

Example
SASS(flat closed L): 'little'
'Little amount'

Discourse stretch: if an example reproduces a communicative exchange between signers, each contribution is signalled by a capital letter followed by a colon.

Example
A: YES
B: THANK_YOU
'Yes.' 'Thank you.'

Part I
Socio-historical background

This Part aims at providing background information about the historical and the socio-cultural context in which LIS has been developed. Overall, it is structured in four chapters.

The first chapter [SOCIO-HISTORICAL BACKGROUND 1] deals with the history of LIS and the history of the Italian Deaf community. This knowledge may help the reader in further understanding the historical development of the language in the Italian context.

The second chapter [SOCIO-HISTORICAL BACKGROUND 2] describes the characteristics of the Italian Deaf community and explains the concept of signing community. A special attention is paid to Deaf culture and the education of the Deaf.

The third chapter [SOCIO-HISTORICAL BACKGROUND 3] provides a brief overview of the current linguistic status of LIS in Italy. In particular, it deals with the current legislation adopted across the country, language planning, language policies, and language attitude (i.e. the way in which signers and non-signers perceive LIS).

Finally, the fourth chapter [SOCIO-HISTORICAL BACKGROUND 4] sums up previous linguistic studies conducted on LIS. In particular, it provides an overview of the main studies on the grammar and the lexicon of the language. It also summarises the main corpora studies conducted to investigate socio-linguistic variation.

Overall, this Part on the historical and socio-cultural context provides a general introduction to LIS as well as its users. This knowledge represents the basis for a comprehensive understanding of this language and its grammar.

1 History

The present chapter provides an introductory framework for the next parts of the grammar. First mentions of gestures in historical documents, educational methodologies applied over the centuries for training deaf people and the history of LIS are topics which will be addressed in the following sections.

The term *Deaf* (written with a capital letter 'D') relates to the common culture shared among Deaf community, by contrast the term *deaf* (written with a lowercase 'd') concerns the medical and clinical condition of deafness.

It is difficult to trace back how deaf people were treated in primitive societies. Probably, deafness started to be considered a deficit in societies influenced by the Judeo-Hellenic tradition, where the oral language played a prominent role in religious rites and social activities. Indeed, the Judaic laws prescribed by the Torah (which were orally transmitted by rabbis until CE 70) were the first to contemplate society as a guardian of the deaf population, considered unable to assume the responsibilities of adults. This attitude is exemplified in the *Baba Kamma* treatise (*The Babylonian Talmud*, AD 3th-6th century), which can be considered an ancient Judaic civil code.

Deaf people were considered either as idiots or minors, this is the reason why they were not subject to punishment. Furthermore, they were not allowed to possess any object found by chance. The first reference of a gestural language is found in the description of a Judaic ceremony of marriage, when the rabbi sanctified the union by means of a ritual sign. In the Judaic culture, deaf people were considered to be possessed by demons and their life was an admonishment for the sins committed by their forefathers.

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In ancient Greece, especially in the Spartan culture (900-146 BCE), when a baby was born with some kind of impairment, he was considered useless and killed. However, deaf babies were probably not affected by these executions because their deafness would be noticeable only later on.

A different perspective is found in the *Cratylus*, written by Platon in the 4th century BCE: here an imaginary dialogue between Socrates and Hermogenes is reported. They discuss the necessity of communication among people. Language is so essential that even without an acoustic communication channel people communicate through a visual-gestural code.

Aristotele (384-322 BCE) claimed in his *Historia Animalium* that "all people who are deaf from birth are dumb as well". This sentence has been misunderstood in the following centuries, allowing scholars of Aristotele to confuse deafness and muteness with senselessness and lack of reason. What the philosopher was saying was that deaf babies cannot learn to speak, if not properly instructed. Furthermore, he differentiated the concept of deafness and mutism, carrying out some studies on the acquisition of language. He also identified a sympathetic connection between the auditory and vocal organs. In the following centuries, his affirmation was assumed by scientists such as Galeno who searched for shared nerves between the tongue and the ears.

One of the first lives of a deaf person attested in ancient documents is found in the *Gospel of Matthew*, where Jesus works the miracle of *Effatà* by making a deaf man hear.

Pliny the Elder (23-79 BCE) in the *Naturalis Historia* (77-78 BCE) discussed Quintus Pedius, a noble mute who lived in Rome during the Augustan Age and instructed on the art of painting.

It was under the Emperor of Justinian (CE 527-556) that we may find the first distinction between different types of deafness: people who were deaf from birth and people who became deaf after some illness or accident. Civil rights were granted to the latter, if they were educated before becoming deaf, and the same rights were assured for men and women, but people who were born deaf were still considered to be dumb as well.

In the Middle Ages, the history of the education of the deaf begins with the Venerable Bede, a priest of the Abbey of Jarrow. In 731, he wrote the *Ecclesiastical History of the English People* and in the same text he also mentioned the cure of a young deaf-mute boy. The story narrates that the Bishop of Hagulstad, in 685, trained this boy and in about two years he became capable of expressing his desires and thoughts. In his book, Bede also refers to a new system based on numerical signs matched with the letters of the Greek alphabet. This system facilitated the education, but it was not used as a communication system, rather as a tool in stimulating intelligence.

One of the first forms of gestural language is mentioned by the Cardinal Jacques de Vitry (CE 1170-1240). During his visit to a monastery, he notes that in accordance with the rule of silence, the monks used their hands in order to communicate with each other. Curiously it seems that their communications were not only about primary urgencies.

Except for these few famous examples, during the Middle Age deaf people were employed in menial jobs. Without receiving any educational training, they were often marginalized and locked in the silence of incommunicability.

In the 16th century, an Italian physician named Girolamo Cardano (1501-1576) expressed the necessity to train and educate deaf people. He studied the physiology of the ears, the mouth, the eyes and the brain and reasoned that the sense of hearing and the capability of speaking were not indispensable for understanding ideas. In any case, his ideas were never put into practice, and two centuries passed by before some visible changes were made.

In the 16th century an increasing interest for new experimental educational methods started to spread among educators, and especially among the religious spheres. The first teachers of deaf people worked in isolation, and were very highly paid to follow very few and selected pupils. A silence hid their method from the risk of plagiarism and little information exists about their educational systems.

The history and development of LIS is strictly connected to the history and educational methods for the Deaf developing in Europe.

In Spain, a Benedictine monk named Pedro Ponce de León (1520-1584) set up a school for deaf pupils of high social status in the village of San Salvator de Oña. He taught them the written alphabet and then instructed them on the pronunciation of each sound, showing the correct position of the mouth. Once they learned to combine the letters composing the words, he associated the correspondent object to these words. Unfortunately, most of his writings concerning his method were lost in a fire that destroyed the monastery's archives.

Another interesting account of the use of signs comes from Ambrosio de Morales (1513-1591), historian to Felipe II (1527- 1598), King of Spain. In his *General Chronicle of Spain* he reported some information about the Ottoman Empire, where the deaf guardians of the Sultan checked the entrance of his Staff. According to his telling, these people were used to communicate with signs and other people in the court, including the Sultan himself, were able to understand them.

During the early 17th century, another important figure in the history of deaf education was born in Spain, the priest Juan Pablo Bonet (1573-1633). He published *Reduction de las letras y arte para enseñar a ablar a los mudos*, a book considered to be the first modern treatise of the phonetics of sign language. The manual alphabet used by Bonet probably comes from other previous alphabets, such as the one ac-

quired by Yebra (taken in turn from St. Bonaventure), or maybe from an Italian one published in Rosselli's *Thesaurus* in 1579.

Other famous educators were Emanuel Ramirez de Carrión (1579-1652), who behaved with his deaf pupils more like a wild animal tamer than a teacher, and the Physician Pietro deCastro (1603-1663), who wrote the *Colostro (1642)* about childhood illnesses. In this book, he supported the possibility of teaching deaf-mutes to speak. During the 17th century, many references were found about the issue of deafness and the education of deaf people, in particular, from a medical or a philosophical perspective. Sometimes these speculations remained at a theoretical level, but sometimes they attempted to develop the empirical structure of language useful for the instruction of deaf.

An important physician of this period, John Bulwer (1606-1656), analysed the use of the hands to communicate, considering it a natural language in the art of rhetoric. He took lip-reading into account as an important tool for teaching deaf people to speak, showing how this use is common among hearing people. Nonetheless, he considered the use of manual alphabets and signs to be much more effective for deaf people, affirming the necessity of setting up academies for deaf people where this system of communication could be taught.

In Great Britain, other figures famous for having studied the methods of teaching to deaf people were George Dalgarno of Aberdeen (1616-1687) in Scotland, who, in an attempt to elaborate a universal language, studied the techniques of deaf education for 20 years and coined the term *dactylology*, today known as fingerspelling. The other figures were the mathematician John Wallis (1616-1703) and the theologian William Holder (1616-1698), both members of an Academy founded by the philosopher Sir Francis Bacon (1561-1626). The former (John Wallis) wrote a very successful work about the sonic elements of language, useful not just for foreigners, but also for deaf people, while the latter (William Holder) was the arch rival of Wallis. Holder was in favour of teaching writing before every other stimulus, because the learners were able to easily memorize the combination of sounds with the written symbols. Their rivalry was based on the demonstration of the efficiency of each of their own educational method. Since Bonet, teaching methods have not been deeply modified; however, each instructor claimed the novelty of his own method, taking credit for its paternity.

The first teacher who described his method in detail was Johann Konrad Amman (1669-1724). He recommended gradually increasing the degree of difficulty in the education of deaf people. With his method, the word became the aim of instruction, taking a clear oralist connotation and laying the basis for the so-called *German school*, which is oriented towards orality, in opposition with the *French school* for philosophical and methodological choices. Germany, France and Eng-

land promoted different educational system. In Germany, the principalities were in favour of opening public schools, while in England the schools were privately financed by rich exponents of the noble class. In France, centralized education favoured deaf people.

The Spaniard Jacob Rodrigues Péreire (1715-1780) developed further strategies to improve the speech skills of deaf-mutes in France, using an improved fingerspelling system. According to his technique, the handshapes represented the phoneme of spoken French. This method will become part of teaching system used by the Abbé de l'Épée in France.

The public education of the Deaf in Europe crucially improved in the 18th century, which represents an important turning point in the history of deafness. In line with the spirit of Enlightenment, the interest in improving and sharing knowledge also grew concerning the public education of the Deaf. During this century, two prominent figures were very influential in the development of the teaching methods for Deaf people: Samuel Heinicke (1729-1790) and the Abbé De l'Épée (1712-1789). The former adopted a vocal oriented approach, thinking that everything should be directed toward the spoken language. This is the reason why he is considered the father of *oralism*, an approach which refused to use signs. On the contrary, the Abbé De l'Épée is recognized as the main promoter of *methodical signs*. Methodical signs were a mixture of a gestural system combined with other invented signs representing grammatical functions of written French, as verb endings, articles, prepositions or auxiliary verbs. This system was used for supporting the teaching of the spoken language. Although he did not contest the validity of teaching spoken words, as the most useful means for becoming part of the hearing society, he considered signs as the natural means of communication for Deaf people.

In the past, the education of Deaf people was individual and elitist, while the Abbé created the conditions for the establishment of a little Deaf community by founding the deaf school in Paris in 1755. In this little community, Deaf pupils developed and increased the sign language system thanks to their daily contacts. Consequently, in 1760 he founded the *Institut National de Jeunes Sourds de Paris* [SOCIO-HISTORICAL BACKGROUND 2.4]. There, the very promising Deaf students were encouraged to become teachers after having finished the training courses, as happened to Laurent Clerc. Indeed, Clerc (1785-1869), at the age of 12, entered the Royal Institution for the Deaf in Paris, where he excelled in his studies. After the graduation, the school asked him to stay as an assistant teacher and consequently he was promoted to teach the highest class, as evidence of the innovative nature of the Parisian system, which was training and fostering deaf professional profiles.

Another great difference between the previous educators of Deaf people and the Abbé was that he made his methods available to foreigner educators. He also established a teacher-training course that allowed the methodical signs to be exported to other countries. Since the first educational experience, and with the collaboration of Roch-Ambroise Cucurron Sicard (1742-1822) who headed up the School after the death of De l'Épée, the method was improved and spread across different countries.

As evidence of this open methodological system, in 1815, the National Institution for Deaf children in Paris hosted Thomas Hopkins Gallaudet (1787-1851), an American preacher interested in deaf education. There, he was trained with the manual method taught by the Abbot Sicard and the deaf teacher Laurent Clerc. This teaching approach impressed Gallaudet who persuaded Clerc to accompany him back to America. The two men raised private and public funds to establish a school for the Deaf in Hartford, the *American School for Deaf* (ASD) in 1817. In 1864, Edward Miner Gallaudet (1837-1917), son of Thomas Hopkins Gallaudet, founded the first college for the deaf, which became the important *Gallaudet University* in 1986.

Influenced by the French method three schools for the deaf opened in the early 19th century in Switzerland: one in Zurich by M. Ulrich, a second one in Geneva, in 1822, managed by Isaac Etienne Chomel, a deaf teacher trained by Sicard, and a third one in Berna, in 1823. The French method also spread to Austria, in 1871, when the Abbey Storck returned to Vienna and founded the first deaf school there. Few years later, the same methodology was exported to the Netherlands and Belgium by M. Delo (for further information, see [SOCIO-HISTORICAL BACKGROUND 2.4]).

As for Italy, in 1784 the first school for the Deaf was founded by the Abbot Tommaso Silvestri (1744-1789) in Rome, financed by the lawyer Concistoriale Pasquale Di Pietro. Nevertheless, after a brief experience with the Abbé De l'Épée, he came upon the Amman's writings and converted his French method into a new spoken-oriented method. The person considered by Deaf people as the true promoter of a sign-oriented method was the Abbot Ottavio Giovan Battista Assarotti (1753-1829). He taught in Genoa, but he was never directly influenced by the French method; his system was based on the widespread dissemination of the books of French educators. In 1802, he founded an Institute for the Deaf which received funds from the Government of France and then from the King of Sardinia.

In 1841, the new directors of the Institute in Rome, which was founded by the Abbot Silvestri, introduced the method of the Abbot Assarotti into the school, which was based on signs and fingerspelling, although in 1865 the oral method was once again restored by Padre Muti and Madre Kuntz, the following directors. This intermittency be-

tween methodologies continued until the Congress of Milan in 1880, a date representing a watershed in the educational system for all European Countries. The Congress took place in the *Regio nstituto Tecnico di Santa Maria* (Royal technical Institute of Holy Mary) from the 6th to the 11th of September to improve the condition of Deaf-mutes. The delegations came from about ten European Countries and one, leaded by Thomas Gallaudet and his son Edward Gallaudet, came from the USA. The Abbot Giulio Tarra, a stronger supporter of oralism, was designed to preside over the Congress and the prof. Pasquale Fornari was the Secretary instructed to write the Acts of the Congress. Very few Deaf people were invited to the Congress, and those who participated were deliberately chosen for their positions in favour of oralism. Except for Thomas and Edward Gallaudet, who were openly in favour of a mixed method of signs and words, the larger majority supported oralism. The debate was therefore closed under the slogan *Viva la parola* (Hooray for the word) and *Viva la parola pura* (Hooray for the pure word). As a consequence, at the end of the Congress, sign oriented methods or mixed sign and spoken-written systems were banned from all official circles - academic, social and political - the oral method used in Germany was considered the most scientific and reliable. Signs were also considered to undermine the acquisition of the spoken language. However, other reasons were identified for the rejection of signs, some of these were driven by national interests. One of the reasons concerned the intention to eradicate linguistic deviations according to the national project of literacy started in Italy since its unification in 1861. Another possible cause was the philosophic conviction that words reflect the superior dimension of abstraction and ideas necessary to acquire intellectual and moral faculties. Finally, religious reasons supported the necessity to give voice to Deaf people in order to actively participate to the Sacrament of Confession. Based on these political, scientific and religious reasons, the Congress of Milan settled the issue of the choice of the best educational system by supporting the superiority of the pure word.

Although neither the opinions nor the requests of Deaf people were considered during the Congress of Milan, in these years Deaf people increased the awareness of their social rights, thanks to the acquisition of a deeper education and training. Indeed, several associations and friendly societies were founded by Deaf people in different cities, such as Milan (1874), Turin (1880), Genoa (1884) and Siena (1890). These types of societies laid the foundations for the following development of the National Body for the representation of Deaf people: the *National Deaf Institution* (ENS). In 1888, Francesco Micheloni (the president of the friendly society of Rome) printed a record condemning abuses against Deaf people and defending the mimic-gestural method. This and other examples testify a rising awareness

of Deaf educators about their rights. In 1911, the *First International Congress of deaf-mutes* took place in Rome, in order to demand improvements in the educational system, in the workplace and in all domains of society. Ten years later, the *Second International Congress* in Rome demanded the extension of the legal recognition of compulsory schooling to all deaf-mutes. Only in 1923 the Gentile Reform applied the extension of the mandatory school to deaf children from 6 to 16 years. Moreover, the Congress demanded the revision of the Article no. 340 of the Civil Code in order to grant deaf-mutes their social and civil rights. This Article stated that deaf and blind people, when they reached the legal age, had to be automatically considered unfit to plead, except for those who had been defined fit by the Court. The Article was repealed by the Decree 12 December 1938. In 1932, the Paduan Antonio Magarotto (1891-1966) organised a national meeting among groups and associations which, after a long and heated debate, established the *Deal of Padua* and the birth of the *Ente Unico* (Unique Institution) on behalf of the national Deaf community.

Ten years later, in 1942 the Law no. 889 on 12 May 1942 officially recognized the Institution. Later on, the Law no. 698 on 21 August 1950 established the legal status of the *Ente Nazionale Sordi* (ENS), the Italian National Association of the Deaf. Since then, ENS officially became the national representative Institution to protect Italian Deaf people. During this period, the debate about public schools with equal opportunities for all children was reopened and ENS was the main forger of the vindication of right and services. In the 1950s, the State reconsidered this topic in relation to the effectiveness of the special school managed by different institutions across Italy. The debate about public education of Deaf people was driven by medical and social reasons connected to democratic administrations and associations. Indeed, the necessity to reconsider the function of the special school was threefold: political, scientific, and pedagogic. Politically, there was an attempt to weaken the strong dominion of religious Institutions, in favour of a national control over education. Scientifically, medical sciences claimed their primacy over religious institutions in managing the condition of Deaf people. Finally, from a pedagogical perspective, the intention was to encourage a secular purpose released by religious power.

After a long debate, in the 1970s, deaf children began to be mainstreamed into schools for hearing people thanks to the Law no. 517 of 1977. After the administrative decentralization, ENS was changed into a private-law Charitable Trust by the Decree Law no. 616/1977. One year later, in the same vein of the Law no. 517/1977, the Law no. 833/1978 set up a new *National Health Service* which granted deaf people health-care services.

After the Law no. 517/1977 Deaf people could attend either special schools or public schools. The consequences were chaotic, since

neither the teachers nor the assistants of the public schools were trained on deafness. Consequently, during that transitional period from special to public schools, Deaf children did not learn much either in Italian or in signs. Another cause of disorder, indeed, was the lack of linguistic standardization. Signs around Italy varied greatly, since Deaf students came from different Institutes [SOCIO-HISTORICAL BACKGROUND 2.4]. Although signs were not officially used in education, and they were not accepted in official circles or at work, the daily interactions among Deaf scholars, living within the Institutes, and the unofficial communications between Deaf students and educators allowed signs to survive and to develop anyway. However, neither the conception of a common national sign language nor the awareness of the linguistic status of signs spread among Deaf and hearing people until the first linguistic investigations started in the late 1980s [SOCIO-HISTORICAL BACKGROUND 3]. Indeed, only in the last 30 years has linguistic research on LIS begun to make any inroads, and the situation has slowly begun to change.

A crucial step toward the improvement of educational conditions for deaf scholars has been reached with the Article no. 13 of the Law no. 104/1992 which established the presence of individual communication assistants for people with physical or sensory impairments. This professional profile was already mentioned within the Law no. 616/1977, however only with the Law no. 104/1992 the presence of these professionals became mandatory in the public schools. The individual assistant has been introduced in the class with the function of facilitating and support the communicative relationships of deaf students with teachers and other scholars. This professional role could be covered by Deaf educators (in kindergarten) or by hearing assistants who know LIS. The Law no. 104/1992 also grants the support of a special education teacher whose task is to facilitate the educational programs and to enhance the growing of scholars. The presence of these professional profiles in the schools allowed to develop a contemporary model of bilingual bimodal educational programs. Bilingual programs consist in training deaf scholars by fostering the development of both communication channels (the spoken and the sign language).

Since 2005, the *Instruction and University Research Ministry* (MIUR) recognized the *National Deaf Institution* (ENS) as an accredited training centre for LIS, in order to create professional educators and individual assistants' profiles for promoting and supporting bilingual bimodal educational approaches into schools (Decree, July 18, 2005).

Although the education and training system needs to be improved in order to assure deaf people (and people with other types of disabilities) a higher quality in services and rights, the current Italian educational model for inclusion represents an important sign of civilization, and a forefront of social and cultural changes.

Information on Data and Consultants

The descriptions in this chapter are based on the references below. Please see the data and consultant information in these references.

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2 The sign language community

Summary 2.1 Community characteristics. – 2.2 Sign language users. – 2.3 Deaf culture. – 2.4 Deaf education.

The present chapter addresses the cultural and social features shared by the Deaf community at national and international level. Specifically, the following sections describe: the characteristics of the Italian Deaf Community [SOCIO-HISTORICAL BACKGROUND 2.1]; the sign language users [SOCIO-HISTORICAL BACKGROUND 2.2]; issues related to Deaf culture, such as the name sign's system, the artistic forms of LIS (poetry, theatre, etc.), the cultural and social centres representative of the Italian Deaf community, the national and international Deaf festivals and events [SOCIO-HISTORICAL BACKGROUND 2.3]; and, finally, a general overview on Deaf education in Italy [SOCIO-HISTORICAL BACKGROUND 2.4].

2.1 Community characteristics

Deaf signers around the world appear to share some common features, making it possible to speak about a cultural universe of Deaf people. Indeed, the types of relationships signers establish, the interactions which occur in sign language, and the concept of time are all part of a specific cultural identity which is shared among Deaf people. Poetry, stories, rhymes and typical narrations in sign language all contribute towards improving this sense of belonging within the Deaf community.

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Although nowadays general standardization processes supported by the implementation of technologies tend to unify the Deaf community, the attempt to define its boundaries still remains a complex task.

Deaf identity is based on the awareness of sharing the same language and fighting for the same purpose: the possibility to gain equality in a dominant hearing society. There is a similarity here to other historical communities which were considered minority cultures, for example ethnic or linguistic minorities who fought against the pressures of colonialism and racism towards black people, or those countering prejudices and violence directed toward the gay and lesbian communities.

On the basis of these similarities, it is possible to consider Deaf culture as a *microculture*. The anthropological studies of Deaf people are still trying to defend the autonomy and the integrity of this culture, although the definition of Deaf Culture is elusive and much debated. According to a model proposed in 1989 by two American researchers, Carol Erting and Robert Johnson, Deaf culture is based on two factors: patrimony and paternity. Patrimony refers to the unit of norms, uses and behaviours of Deaf people in addition to the positive disposition to learn and share knowledge; while paternity concerns the biological status of deafness, which is a crucial factor in being part of the Deaf culture in the strict sense. People who share both these features are part of the Deaf culture, while people who only share sign language and some of the uses of this culture are only part of the Deaf community. Indeed, Deaf community is a broader concept and involves all the people who have professional or personal relations with Deaf culture. On the basis of this theory, three different types of people can be considered part of the Deaf community: the group of native signers born into Deaf families, the Deaf people who cannot be considered native, and all the remaining people who know or use the sign language and have contacts with the Deaf culture. The hard core is composed by native signers (circle A, below), deaf children with deaf parents who have used sign language since their birth. This group is very small and represents 8/10% of signers. Another group is composed of Deaf signers who started to sign later in life (circle B, below), thanks to educational institutions or for personal reasons. Finally, a broader group is composed of hearing people (circle C, below), who have professional or personal relationships with the Deaf community. This group includes the relatives of deaf people, interpreters, educators and teachers who share variable competence in sign language. In this way, the third group represents the ideal society where Deaf and hearing people have no communication barriers thanks to the shared knowledge of sign lan-

guage. The space with the letter (D) represents, instead, all the remaining hearing part of society, with respect to which Deaf culture often defines itself.

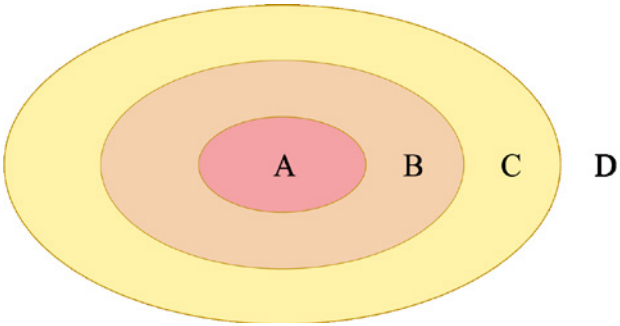

Figure 1 Composition of the Deaf community (recreated from Russo Cardona, Volterra 2007, 40)

The subcategories within the definition of Deaf are much more complex. Indeed, the Deaf group is far from being homogeneous, and in fact the concept of deaf can be subdivided into more specific categories such as inborn/acquired, pre-linguistic/post-linguistic, signer/oralist, child of deaf parents/child of hearing parents, with prosthesis/without prosthesis. The first refers to the period of life when the condition of deafness first appeared, namely congenital deafness or acquired. The second subcategory reflects the condition of deafness with respect to language acquisition. The third defines deaf people in relation to their linguistic choice of either the sign or spoken language. In the fourth opposition, the deaf or hearing condition of the parents can affect the social, psychological, emotional and linguistic development of the deaf child. Finally, a prosthesis or implant, generally considered as a facilitation tool for spoken language acquisition, may also affect the social, psychological, and emotional sphere and, in some cases, the linguistic competence of Deaf people and their Deaf identity.

However, all these background conditions could be considered as irrelevant if the deaf person identifies himself/herself as part of Deaf culture. Elements relating to deaf backgrounds can only be relevant in the social status of Deaf people within Deaf culture. Indeed, if a Deaf person descends from generations of Deaf people, his/her status will be proudly considered as pure Deaf.

Another sensitive topic inside the Deaf community concerns the cochlear implant. In some parts of pure Deaf groups, implants are considered as a process of cultural genocide and people who have been implanted are generally not considered pure Deaf anymore. The discussion over cochlear implants is part of broader fears shared among many Deaf people about the possibility that the Deaf culture may disappear in a few decades. Technological and scientific progresses treat deafness as an illness, trying to find a cure for it. The debate about cochlear implants is complex and implantation is far from being the final solution for acquiring the hearing status. The Italian Deaf community is divided on this topic. Deaf people are scared they might lose their sign language and they might disappear, as happened to many other minority cultures before.

A group closely related to the Deaf community is represented by Deafblind people, an almost unknown community counting 198,000 people in Italy (ISTAT, 2013). Not being able to see, hear or speak are conditions which can lead to a complete form of isolation. This is one of the reasons why Deafblind people struggle to be recognized as a community. Deafblind people communicate in different ways depending on the nature of their physical conditions, their education and their backgrounds. Method of communications include: i) the use of residual hearing or sight, for example signing with a restricted visual area, ii) Italian Tactile Signs Language (LISt) or adapted LIS, and/or iii) other communication strategies, as Screen Braille Communicator, and iv) alphabetic methods, as the *Malossi* method or the tactile dactylology. Similarly to LIS for Deaf people, LISt has been created and evolved among those Deafblind people who chose tactile sign language as a preferential communication channel.

In Italy, the first network among Deafblind people was founded in 1964 by Sabina Santilli, a Deafblind woman born in a little village of the Abruzzo region. The founded association is the *Lega del Filo d'Oro* which still today represents one of the main clubs supporting Deafblind people's rights in Italy.

2.2 Sign language users

This section provides relevant statistical information about deafness in general, the Deaf community, and the Deafblind situation.

Table 1 General deaf impairments and national spread

Features	Numbers	Percentage	Descriptions
National population	60,600,000		Persons residing in Italy
Hard-of-hearing	5,000,000	8.2% of national population	Total number of people with hearing impairments (Carlo Eugeni-Unapeda)
People with hearing impairments	1,198,000	2% of national population	People with only hearing impairments as sensorial disability (ISTAT, 2013)
Women with hearing impairments	638,000	53.3% of 1,198,000	(ISTAT, 2013)
Men with hearing impairments	560,000	46.7% of 1,198,000	(ISTAT, 2013)
People with hearing impairments over 65	895,000	74.7% of 1,198,000	(ISTAT, 2013)
Nationwide: North-West	289,920	24.2% of 1,198,000	(ISTAT, 2013)
North-East	233,610	19.5% of 1,198,000	(ISTAT, 2013)
Centre	258,770	21.6% of 1,198,000	(ISTAT, 2013)
South	268,350	22.4% of 1,198,000	(ISTAT, 2013)
Islands: Sicily and Sardinia	147,350	12.3% of 1,198,000	(ISTAT, 2013)

Table 2 Deafness and education

Features	Numbers	Percentage	Descriptions
Total number of scholars with hearing impairments.	6,217	2.64% of 234,788, the total number of scholars with deficit	Preschool, primary school, junior high school, high school (ISTAT 2014/2015)
People with hearing impairments and compulsory education.	994,340	83.0% of the total number of people with hearing impairments, 1,198,000	(ISTAT, 2013)
People with hearing impairments and high school graduation.	165,324	13.8% of the total number of people with hearing impairments, 1,198,000	(ISTAT, 2013)
People with hearing impairments and a university degree.	38,336	3.2% of the total number of people with hearing impairments, 1,198,000	(ISTAT, 2013)
Profoundly deaf people.	70,000	0.1% of national population, 60,600,000	Born deaf or became deaf before learning any language. Deafness is considered profound when the hearing loss is equal or higher than 90 decibels (EUD, 2014)
Profoundly deaf scholars in primary school	4,930	2.1% out of scholars with deficit (234,788)	Deafness is considered profound when the hearing loss is equal or more than 90 decibels (ISTAT, 2014-2015)
Deep deaf scholars in junior high school	4,226	1.8% out of scholars with deficit (234,788)	(ISTAT, 2013)

Table 3 Deaf community

Features	Numbers	Percentage	Descriptions
Deaf registered by ENS	60,000		(ENS, 2010)
Deaf sign language users	40,000	60% out of profoundly deaf people are signers	(EUD, 2014)
Deaf signers with Deaf parents	7,000	10% out of profoundly deaf people	Carlo Eugeni-Unapeda

Table 4 Deafblind

Features	Numbers	Percentage	Descriptions
Total Deafblind people	189,000	0.3% of national population	(ISTAT, 2013)
Nationwide: South and Islands	89,586	47.4% of 189,000	(ISTAT, 2013)
Centre	40,450	21.4 % of 189,000	(ISTAT, 2013)
North	59,157	31.3% of 189,000	(ISTAT, 2013)
Deafblind people graduated from compulsory school	169,910	89.9% of 189,000	(ISTAT, 2013)
Deafblind people graduated from high school	14,553	7.7% of 189,000	(ISTAT, 2013)
Deafblind with university degree	4,536	2.4% of 189,000	(ISTAT, 2013)
Deafblind without any other sensorial deficit	68,000	36.1% of 189,000	(ISTAT, 2013)
Deafblind with motor deficit	98,000	51.7% of 189,000	(ISTAT, 2013)
Deafblind with mental deficit	76,000	40.1% of 189,000	(ISTAT, 2013)

2.3 Deaf culture

As introduced in [SOCIO-HISTORICAL BACKGROUND 2.1], Deaf Culture considers deafness as a cultural factor, and medical or scientific perspectives are not relevant in its definition.The relationships between Deaf people, their language, the shared knowledge about the history of Deaf people or their traditions and uses of life are considered important for the construction of Deaf identity. However, this construction is often in opposition with the hearing society. The boundaries of Deaf culture are both external and internal. The internal boundaries are built upon the sense of belonging to Deaf culture and sign language, while the external boundaries seem to be imposed by the inaccessibility to the social or economic spheres of the hearing society. The perspective of Deaf culture as a linguistic and cultural minority implies economic government support, just as the medical perspective requires economic facilities and medical services such as cochlear implants, speech therapies and supporting devices. Deaf culture is enhanced as it acts in opposition to the social and economic conditions of a minority being imposed by the hearing model of society. Moreover, Deaf culture is powered by a circular revitalization: generation by generation Deaf people define their identity through constructive processes. These processes claim an independent identity, rejecting the definitions which come from the point of view of the majority hearing culture. For the same reason, Deaf people generally do not appreciate the same politically correct definitions as *non-hearing* people. Indeed, the definition of people who lack something is automatically related to an intact hearing dominant culture. In this sense, the word Deaf, like the word Blind, defines a condition without implying a dominant reference model.

In relation to Deaf identity and culture, an important concept is *Deafhood* which has been introduced by Paddy Ladd in *Understanding Deaf Culture; In search of Deafhood* (2003). The suffix *–hood* in spoken English concerns the status or the quality of a previously mentioned noun (in this case the deaf population). No literal translation is possible in Italian, but, in a nutshell, the concept expresses the condition of being deliberately part of Deaf culture and community in contrast to the simply medical condition of deafness. Deafhood is a psychological and social process of increasing the awareness of deaf condition, in order not to consider it as a loss of something, but as part of an individual and collective identity. Another crucial concept in reframing deafness with respect to society is the notion of *Deaf Gain*. It is a framework proposed in 2009 by an article of H-Dirksen Bauman and Joseph Murray; even though the first mention was by Aar-

on Williamson, a deaf artist performer, who firstly wondered why it was that not a single doctor told him he was *gaining his deafness*, instead of *losing his hearing*. Indeed, the concept is conceived as a redefinition of *deafness* as a sensory and cognitive diversity which has the potential to contribute to the enrichment of humanity. In addition to the benefits to society, there is a direct benefit for Deaf people who use a visual based language. For example, researches have shown that Deaf people have a more well-developed peripheral vision, a greater ability to form quick mental images and better facial-recognition skills. New concepts such as *Deafhood* and *Deaf Gain* contribute in increasing the awareness of Deaf identity by reframing the traditional notion of 'normalcy'.

The presence of cultural prevailing schema among the hearing population created barriers in the social inclusion of Deaf people, enhancing misconceptions and marginalization. However, the minority status of Deaf people is not common everywhere, indeed in some cultures there are no boundaries between hearing and Deaf people or between the two different cultures. Two examples are the story of a Mayan village in Yucatán and the story of Martha's Vineyard, an island off the coast of Massachusetts. In the first case, the high number of deaf people yield deaf inhabitants to be well integrated in the community. Since hearing people knew sign language, no communication problems are considered as obstacles for the relationship between hearing and deaf people inside the village. It seems that hearing villagers are still used to communicate through Yucatec Maya Sign Language, even if the number of deaf inhabitants started to decrease. The second story concerns the case of Martha's Vineyard island, which draw the linguistic researches attention to both the deaf and hearing islanders. Indeed, since the unusually high percentage of deaf people within the community, the Martha's Vineyard Sign Language (MVSL) was able to thrive on the island from the early 18th century to 1952.

In the island, deafness was a hereditary trait, so that Deaf people of the island did not consider themselves as impaired and they lived in a complete autonomy. In addition, they were deeply integrated among the remaining hearing island's inhabitants. The sign language was used and taught to hearing children as early as their first years and signs were spread among hearing people even when no deaf people were present. MVSL started to decline when the population migrated to the mainland, and today no fluent signers are attested anymore. The last deaf person died in 1952, since then, very few elderly islanders were able to recall MVSL, when in the 1980s linguistic researchers started to examine the language in order to

save it. These examples, together with few others represents unusual cases of complete integration between hearing and deaf people, due to the absence of communication barriers. However, Deaf people are generally discriminated and marginalized by dominant hearing group. In post-industrial societies, Deaf people seem to share common life experiences. This is the reason why Deaf culture appears to overcome national boundaries by sharing a common ground of uses and universal perceptions. Some of them are: the types of relationships shared among Deaf people; the visual channel of sign languages; the concept of time which is not dependent on the production or working dimension of post-industrial societies; the way in which they are used to meeting each other. All these factors seem to be part of a specific sense of belonging to a broader Deaf culture.

An important part of Deaf identity is represented by name signs [LEXICON 3.1.2]. In our post-industrial societies, from birth it is common to recognize our identity in the name which is has been chosen for us. However, in other culture names are not unique and unchangeable, and in fact a person can have several names to identify different social roles or s/he can change names to mark different moments of life.

In Italy, in the past, something similar happened when a married woman changed her surname to take that of her husband. Furthermore, in post-industrial societies the specific meaning of the name is often lost, while in other cultures, names are chosen because they describe behavioural or physical characteristics. Something similar happens in Deaf cultures, where Deaf people, but also hearing people part of Deaf communities, are identified with one or more name signs. In Italy, as well, Deaf people share two names: one in spoken language and one name sign. These two names represent the double belonging to the hearing and Deaf spheres. Name signs in LIS can be arbitrary or descriptive. The latter are descriptions of specific physical characteristics, for example related to the hair or to particular facial traits. Someone with curly hair can be named with the sign denoting curly hair, as shown in the video below.

ANNA _ CURLY-HAIR

These descriptions can also represent the specific attitude of the person designed with that name sign, as for example the smile, if the person is often cheerful (see video below), or they can refer to the job or to some specific abilities of the person who bears the name sign.

ANTONIA _ SMILE

The arbitrary name signs, on the other hand, are not expressions of specific individual qualities, but are initialisations [LEXICON 2.2.2.1] or typical representations or translations of the name or surname in Italian. In the first case, initialized name signs use the first letter of the spoken Italian name or surname, as for example for the name Federico, the initialisation will be F. The letters are signed with the manual alphabet [LEXICON 2.2.2], which is a contact point between signs and words (see example below).

FEDERICO

In the second case, name signs are correlated to very common Italian names, as for example Pietro or Paolo. Very often these typical names come from the religious tradition and have fixed signs which correspond to them. Thus, Pietro will be signed as the sign for 'key', because according to the Christian tradition Saint Peter holds the keys of the kingdom of heaven.

PIETRO

Finally, a translated name sign is a literal translation of Italian names or surnames. For example, if the surname is *Scarpa 'shoe'*, it is translated with the corresponding LIS sign.

LUCA_SCARPA

Name signs can also be mixed, meaning that these classifications are not rigid and fixed, but that sometimes they can be used together. Name signs can be inherited and transmitted generation by generation, but this is not a rule. Furthermore, more than one name sign can coexist for the same person, for example the family name sign can be different from the name sign spread among the Deaf community, in this way a person can be identified with a specific sign from the family and with another specific sign from the community. Generally, there are three steps for changing a name sign: the first name sign is given by the family, the second is given by classmates or teachers and, thirdly, a name sign can change depending on the person's job. The ability to keep track of the name signs at different times and in different environments is a property of complex language systems.

The Deaf community also shares cultural and artistic types of cultural expressions in LIS. Poetry, theatre, rap performance, painting, cinema, cultural events and many other forms of artistic communication have been spreading and growing in the recent decades in Italy,

also thanks to contacts with other international Deaf artists. In Italy, festivals of Deaf theatre and poetry are organised yearly in different cities. These meetings represent important opportunities where Deaf artists can improve their skills and establish a social reputation in the Deaf community. However, thanks to scientific progresses and social media, the community mostly shares cultural performances through YouTube, Facebook pages, personal blogs, Instagram and other forms of social communication.

Sign language poetry started to appear in Italy in 1976, thanks to Joseph Castronovo, a Deaf American poet who was trying to trace his Sicilian origins. He married Graziella Anselmo and together they encouraged the spreading of sign language poetry, enhancing the visual channel of this special linguistic expression. In Palermo, they joined a theatre company, *Il Gabbiano* ('The Seagull') founded by Rosaria, Giuseppe, Maurizio and Fabio Giuranna in order to promote LIS. These four Deaf siblings, coming from a long Deaf family tradition, were emerging in the Deaf community thanks to their special artistic skills. Their performances were appreciated by the Deaf community and interest in them grew. In 1997, when the first International Festival of theatre, poetry and sketches in LIS was organised in Trieste, they won the first award for poetry. Other similar cultural events have been organised in Genoa in 2000, Naples in 2005 and Rome in 2017.

Rosaria Giuranna can be considered one of the first Deaf women poets, Rosaria and her brother Giuseppe Giuranna are some of the most well-known performers of Visual Vernacular, another form of artistic expression. Year by year, many other Deaf poets and performers started to run the social scene: one of the first poets was Renato Pigliacampo, who was specialized in written Italian poems, although being a postlingual Deaf. Some of the contemporary Italian Deaf poets who compose in LIS are: Lucia Daniele, Valentina Bani, Nicola Della Maggiora, Laura di Gioia, and Chiara Di Monte.

Topics of poetry are often linked to the condition of being Deaf in a hearing society, they can be metaphors or expressions of personal experiences, reinterpretations of historical events, or short symbolic fantastic narrations. Visual perceptions are prominent and unusual new linguistic forms are created in emphasizing the force of communication by expanding the boundaries of every sign. Poetry testifies a specific linguistic awareness: the ability to catch the relationship between expressive forms and meanings and the straightforward capability to create rhythmic sequences, symmetries, rhymes, repetitions, assonances and text-internal references. In a poetic performance, the linguistic form is valued as well, although the poet may not neces-

sarily be aware of all the choices made. The poetic language seems to disobey the common rules of the grammar, indeed poets are those who use language in unusual ways, finding new formal and stylistic solutions. Language is folded to the poetic intentions in order to support and enhance the different layers of meaning. Among others, one of the properties of a poetic text is repetition. This stylistic strategy can be used in different linguistic layers of LIS: at a phonological layer by repeating the same configurations, movements or orientations of signs, at a morphological level by repeating the same signs, and at a syntactic level by repeating the sentences with or without variations of manual and non-manual features. Repetition makes the interpretation of content easier and enhances the relevance of the message. Another recurrent property of sign language poetry is the symmetry in signing. This is a stylistic technique which reinforces visual patterns and the structural order of the signs, moreover, it makes signs balanced and more fluent.

A common scheme of poetry reflects a circular structure, like some refrains in spoken songs, where repetition and symmetric patterns create a visual melody comparable to the musicality of some oral forms of poetry. Contrary to common misconceptions, even sign language has rhythm. Rhythm is not only transmitted through acoustic sounds, in fact, visual rhythm is built upon repetition of signs, duration and movements. The uses of these factors produce different types of emphasis, for example accelerations or downturns affect the rhythm of signing.

Iconicity is a further property of languages: in spoken languages, onomatopoeic sounds are iconic because they reproduce real sounds by codifying them into words, such as the verb 'mooing' which reproduces the sound of a cow. Sign languages also use iconicity, but, since the communication channel in sign language is visual, they use visual iconicity. In poetry, iconicity supports the artistic expression of signs. Generally, it is reflected by the choice of handshapes, but movements, orientations, locations and non-manual features can emphasize iconicity as well.

The collection *Sette poesie in LIS* ('Seven poems in LIS') is one of the first examples of poetry which was published and disseminated by means of CD-ROM. The project was realised by Rosaria and Giuseppe Giuranna. In the CD, one of the poems, *Orologio* ('Clock'), is about the passing of time and the individual perception of the temporal dimension. Time is affected by meetings with people who can break the monotony of daily life. Different rhythms accompany different time perceptions, slow repetition and the cyclicality of signs emphasise for example the boredom of life, while a sudden change

in the speed of signing shows an emotional break in the circular perception of time. In this way, linguistic forms and content overlap giving back the visual effect of the passing of time.

Together with repetition and iconicity, semantic indeterminacy is another characteristic property of poetry. This kind of semantic vagueness allows the extention of interpretations and meaning of the poems over its formal and semantic boundaries. A good example of semantic indeterminacy arises in the poetry of Lucia Daniele: *Matita* ('Pencil'). Since this poetry is less narrative than *Orologio*, more of the semantic interpretation is left up to the audience. *Matita* is a metaphor for life, its gentle track can be cancelled, and the pencil is worn like the life of human being which is used right to the end. On this vein, the poetry could be interpreted as a description of an entire human life, from birth to death. The repetition of the handshape 1, the same used for person, is not accidental and visually enhances the metaphor. However, the semantic vagueness of this poetry allows other level of interpretations, for example, it is possible to read the necessity of facing the hardships of life, of not giving up to obstacles, and, as a pencil can be sharp, life can also be made sharp by pains. All these interpretations are possible, because the use of classifiers and role shift make the reading broader and stratified.

Since poems in LIS cannot be written (yet), the reproduction of poetry are performative moments for the artists. Indeed, poetry and theatre are close in this genre and require not only a physical, but also a deep mental presence and concentration from the poet. Based on the performative nature of sign language poetry, each reproduction is unique and unrepeatable.

Other genres of artistic performances exist, such as Visual Vernacular, ABC stories and creative storytelling. *Visual Vernacular* (VV) is an artistic genre which is related to cinematographic effects. Although it has a high use of iconicity, contrary to common misconceptions, it is not universally understandable. Visual Vernacular uses sign language mixed with visual techniques based on classifiers and role shifts. In Italy, Giuseppe Giuranna is an internationally known VV performer. In his videos, fragments of several of his performances make clear the deep iconic nature of these kind of cultural expression, which requires a perfect ability in assembling the scenes and taking into account the rhythms, time sequences, points of view and foci. In Italy, another famous national Visual Vernacular performer is Gabriele Caia.

ABC stories are performances in signs which follow a regular pattern given by the order of the hand alphabet. Because of their nature, they represent a contact point between spoken languages (they use

alphabetic letters) and sign languages (they use the hands in order to produce letters). Gabriele Caia and many other Deaf artists, as the deaf blogger Lorenzo Laudo, have played with ABC stories. An example by Lorenzo Laudo is the ABC story *Buongiorno?* ('Good morning?').

Theatre companies and performers represent an important piece of artistic forms and expressions within the Deaf culture. It is impossible to establish when the first theatre company in sign language was founded in Italy. Probably, in the first decades of 1900 a group of Deaf people enjoyed performing shows and sketches in the local clubs of their cities. No written documents have been found and the unique performances are transmitted via the memories of old signers.

The list below shows some theatre companies playing at international and national level, which participated at the first Deaf Festival (Trieste, October 30 - November 2, 1997).

The theatre company of Mime *Senza Parole* ('Without Words'): it was founded in Milan by Sergio Cattivalli, born to Deaf parents. After a break, in 1979 the leadership was assumed by the director Antonio de Pieri. The proposed topics are original and cross several genres, such as cabaret, drama and comedy, all of them turning around Deaf culture. Other shows are reinterpretations of famous masterpieces. The company plays in Italy, but also in other countries, such as Spain, Denmark, USA, Japan.

The theatre company *Il Ciclope* ('The Cyclops') was founded in Palermo by a group of Deaf people in 1976. It performs musicals with LIS songs, sketches, poems concerning Deaf culture and community, daily life, and typical Deaf experiences in the hearing society are performed as well. The company is open to Deaf and hearing players. Its tours are usually organised across Italy, but also France, Spain and Japan.

The theatre company *Laboratorio Zero* ('Zero Laboratory') was founded in Rome by Ginetta Rosato, a Deaf director. Initially the name of the Company was *La Mandragola* ('The Mandrake'), and in 1986 it was changed in the current one. Since 1993 the company started to perform only reinterpretations of famous comedies and it has performed in several Italian cities.

The theatre company *Padre Luigi Aiello* ('Father Luigi Aiello') is based in Molfetta-Bari and was founded in 1985 by Domenico Binetti and other friends. The group plays cabaret and comedies, which are represented using signs and gestures. This accessibility is appreciated by the local and national schools, where the company played several shows.

The theatre company *Teatro del Sole* ('Theatre of the Sun') was founded in Catania and directed by Antonio D'Urso. Initially, the com-

pany was composed of both hearing and Deaf players. Since 1992, it has only featured Deaf actors.

The theatre company *Maschera Viva* ('Live Mask') operates in Turin and it is run only by Deaf players. The shows are represented in sign language and are related to scenes of Deaf daily life. Lucia Daniele used to perform with the company. The group has performed in several Italian cities.

In Milan, the association *Orgoglio Sordo* ('Deaf Pride') was founded in 1983. The main goal of the group is to spread knowledge about Deaf culture and LIS among hearing and deaf people. In 1995, it organised a short linguistic and poetic course about sign language run by Clayton Valli, a famous Deaf American poet. The course was one of the first chances to learn and develop poetic techniques. The group performs in several Italian cities with poetry and songs.

The group *Mimico Trentino* ('Trentino Mime') was founded in Trento thanks to the support of the City of Trento and the local ENS. The project was initially run by Enzo Maria Caserta, who passed away in 1997. It proposes funny sketches and shows about Deaf culture at a national level.

The theatre company *Il Gabbiano* ('The Seagull') was founded in 1997 by the Giuranna siblings and performs poems and songs in LIS. It won the First Deaf Festival in Trieste with the poem *Grazie* ('Thanks').

The *Arte&Mani* ('Art&Hands') - *Deaf Italy Onlus* was established in Rome in 2011 together with the experimental company *Teatro Sordo Lis* ('Deaf LIS Theatre'). The group is composed by hearing and deaf actors who work together to create accessible performances for both hearing and deaf audience.

Theatre companies and artistic performances contribute in disseminating LIS at national and international levels, however, the increasing interest for sign language and Deaf culture in Italy is also fostered through the presence of new private and public associations which are promoting LIS among hearing people, fighting against the stereotypes for a better knowledge of the Deaf universe. Across Italy, beside the presence of ENS, other associations work for the promotion of LIS. Examples of the growing interest are provided by the rising numbers of subscriptions to LIS courses at different levels [SOCIO-HISTORICAL BACKGROUND 3.3].

The social empowerment and life changing effects on Deaf people are also testified by the recent opening of new public places, such as bars and pubs run by Deaf people or with Deaf people. In Italy, the first and most important place totally run by young Deaf people is the *Senza Nome* bar ('Without Name') opened in Bologna, in Via Bel-

vedere, 11/B. The space was founded by Alfonso Marrazzo and Sara Longhi and represents a contact point for hearing and Deaf people. The main goal is to create opportunities for mutual relationships. It is a welcoming place where boundaries break down, leaving room for daily inclusion experiences. The space is also a frequent promoter of cultural and artistic events, such as book presentations, cultural and linguistic discussions, and workshops and courses of different kinds. Indeed, many of the Deaf people who work there come from artistic backgrounds, and the bar has been opened with the precise purpose to foster LIS through public artistic performances or installations.

Another central place for Deaf culture is *L'Altro Spazio* ('The Other Space') opened in Bologna (in via Nazario Sauro, 24/F) after the success of the *Senza Nome* bar and supported by the association *Farm*. Unlike *Senza Nome*, *L'Altro Spazio* has a broader vocation, and is designed as a contact space for people with various disabilities. It fights against the stereotype of disability as a lack of something. The idea came from the sisters Nunzia and Santa Vannuccini together with Jasha Blume.

All these experiences are examples of the growing awareness of Deaf people concerning their rights and their changed social status. The new Deaf generations want to review welfarism and the old mentality toward deafness, testifying their proactivity and their right to be independent. The success of these spaces cannot be justified just as fashions or social tendencies, they seem rather to be consequences of a renewed awareness conception of social diversities which describe a new relational model of society. These examples are parts of the concept of *Deaf Gain*, which suggests to counter the predominant schema of being Deaf as a loss by reframing deafness as an opportunity for human enrichment.

The spreading of this changed vision of deafness and the growing of Deaf identity and culture can also be attributed to the increase of national and international events and festivals organised by the Deaf community in the last decades. One of the most important events for the Deaf community is *CineDeaf*, the Italian Festival of Deaf Cinema. It was started in Rome in 2012 thanks to the support of the *Ente Nazionale Sordi* ('National Deaf Institute'), and has had four editions so far (2013, 2015, 2017). The team who organised this international Festival is composed of both hearing and Deaf people. Their idea is to work together to promote knowledge and organise meetings between the traditional cinema circles and the Deaf artists and directors. The Festival wants to create dialogic spaces where perspectives and different points of view can be exchanged and shared. Furthermore, the project's goal is to find new paths and new expressive lan-

guages of communication in order to renew and enrich traditional experiences. It also aims at spreading and disseminating new independent talents, and even young talents are involved through the participation of schools. Culturally, the CineDeaf represents an important network with other foreign film projects across the world and it is a great opportunity to meet other Deaf communities.

As already mentioned in the previous section, Deaf theatre is generally celebrated across Italian cities and represents an important opportunity to experience international Deaf cultures and to share experiences between Deaf and hearing people from different parts of the world. The First Theatre Festival was organised in Trieste (1997), and others were based in Genoa (2000), Naples (2005), and the last was run in Rome (2017).

Other representative occasion related to the international Deaf community are: i) the *World Deaf Day* (WDD), which is celebrated every year in the last week of September to direct the attention of the media, politicians and authorities towards the achievements of Deaf people, as well as the hearing communities. People are also encouraged to celebrate this day to expand new technologies and improve the opportunities to change their lifestyle in society. (ii) The *Summer* and *Winter Deaflympics* (Olympic games for deaf and hard of hearing people). The first game, known as the *International Silent Games*, were held in 1924 in Paris by the *French Sport Deaf Federation* involving athletes from nine countries, in order to prove that deaf people were not inferior, a common misconception at that time. Today, *Deaflympics* is mostly organised by the *International Committee of Sport for Deaf* (ICSD) and involves 113 memberships. Another very important event spread among the Deaf community is the *Deaf Champion League* (DCL). Since the first competition in 2008 based in London, DCL is played every year in a different city. Today DCL includes 29 different countries. Not only sport represents an important occasion for sharing and fostering Deaf identity around world, but also art, culture, and fashion, which are crucial points in the *DeafNation World Expo* (DNWE). The first DWE was held in Las Vegas from 19 to 22 July 2010, the idea of a World Expo comes from the *DeafNation*, a social media company co-founded in 2003 by the brothers Joel and Jed Barish. The DNWE was established in order to create an opportunity for Deaf people around the world to meet and exchange life experiences. A known event linked to the DWE and spread among Deaf national and international communities is *Miss & Mister Deaf International* (MMDI). The first MMDI pageant was established in 2010, thanks to the idea of Ms. Bonita Ann Leek. Indeed, in 2010, the pageant, which before 2010 was local, received the opportunity to be incorporated in the *DeafNation World Expo*, acquiring an

international visibility. Since then, seven editions have been organised in various cities across the world. However, the beauty pageant has also a national version, *Miss & Mister Deaf Italy*, held in Italy since the first edition in 2011. The pageant is organised by *Alphabet Onlus* in order to raise the profile of Deaf people across Italy, but the Onlus also supports Deaf families with limited means and promotes the development of technological tools for deaf people.

These types of events are part of the sense of belonging to the same community, and they come from the will to share experiences and integrate Deaf conditions among society. Internationality is a way to recognize similarities over differences and becomes stronger in shared new projects and new ideas.

2.4 Deaf education

As introduced in [SOCIO-HISTORICAL BACKGROUND 1], in the past, the education of deaf children was managed through various methods, but nonetheless there were two main tendencies: a spoken-oriented and a sign-oriented method. Both theories were improved during the 18th century: the first one by Samuel Heinicke (1729-1790) and the second one by the Abbé De l'Épée (1712-1789). Heinicke was born on a farm in Germany, and after an experience in the military he worked as private tutor. Around 1754, he taught a deaf boy to write with great success, following the spoken-oriented book by Amman. In 1768, he took on another deaf boy and taught him how to speak and write with brilliant results. In 1778, Heinicke opened a school for the deaf in Leipzig. His method is defined oralist because he claimed that spoken language is the starting point for thoughts, and the written form is simply a consequence of it. This was the reason why he avoided teaching the written language first. Heinicke's use of signs is unclear, but it is most likely that he did not reject their use, employing natural signs and the manual alphabet as a means in supporting his spoken-oriented system.

A completely different educational model was promoted by the Abbé De l'Épée, who was born in Versailles to a wealthy family. He came upon twin deaf sisters, who had just lost their spiritual leader, and, being moved to pity, he decided to take care of their instruction. In a short time, thanks to his success, he took on other deaf pupils. In 1760, he founded the *Institut National des Jeunes Sourds* in Paris. Initially, he developed his own method, using the natural signs of deaf people in Paris as the primary means of communication. Increasing the number of his students, De l'Épée began to be well-known in oth-

er countries. Unlikely his predecessors, he was more than happy to spread his methodology at an international level, welcoming foreign teachers who were interested in his work.

According to these ideal principles, in 1776 he published a book, later improved and republished in 1784, where he expounded the theory and practice of his method. His primary goal was not to teach speaking and writing to his pupils, but to enrich them through intellectual and spiritual education. In order to pursue this aim, he found sign communication to be the most efficient method. De l'Épée added the *signes méthodiques* to the *langue de signe naturel* in an attempt to adapt French sign language to the grammar of spoken French [SOCIO-HISTORICAL BACKGROUND 1]. He also used to consider fingerspelling as a methodological tool, and the verbs taught were followed by *methodological signs* which marked the tense and the aspect of the verb. Furthermore, he considered lip-reading hard to teach, but also very useful for deaf people to acquire the spoken language.

The spreading of this sign-oriented method provoked attacks from the men who supported the opposite educational theories, such as Heinicke and Pereire. They declared that De l'Épée's method was useless and dangerous for the learning purposes of deaf people. Although a commission analysed his method and claimed that it was valid, Heinicke remained doubtful and sceptic. De L'Épée died in 1789, and Ambroise Sicard (1742-1822) became the director of the *National Institute*. In 1818, he completed and published the dictionary begun by De L'Épée *Theorie de Signes*, where, for the first time, signs were organised by a criterion of classes of idea and not alphabetically. Sicard improved the method of his predecessor, the final purpose of teaching was for him to allow students to be able to express their own thoughts. He abandoned De L'Épée's aim to teach signed French, in favour of a bilingual approach. Finally, Roch Ambroise Bebian (1789-1839), Sicard's successor, refined his method and produced a manual for teaching the French language through the use of the sign language. The French method, improved by these additional revisions, was widely spread throughout Europe and across the ocean as well.

One of the most fruitful heirs of these developments was Thomas Hopkins Gallaudet (1787-1851), an American reverend interested in deaf educational methods [SOCIO-HISTORICAL BACKGROUND 1]. In 1816, thanks to an invitation from Sicard, he visited the Institute for the deaf in Paris, and after some months he got a permit to go back to America with Laurent Clerc, a brilliant deaf teacher of the Institute. In 1817, at Hartfort, in Connecticut, Gallaudet and Clerc opened the first school for deaf students: the *American School for Deaf* (ASD).

French Sign Language was introduced in the new school and this is the reason why American Sign Language (ASL) is so similar to French Sign Language (LSF).

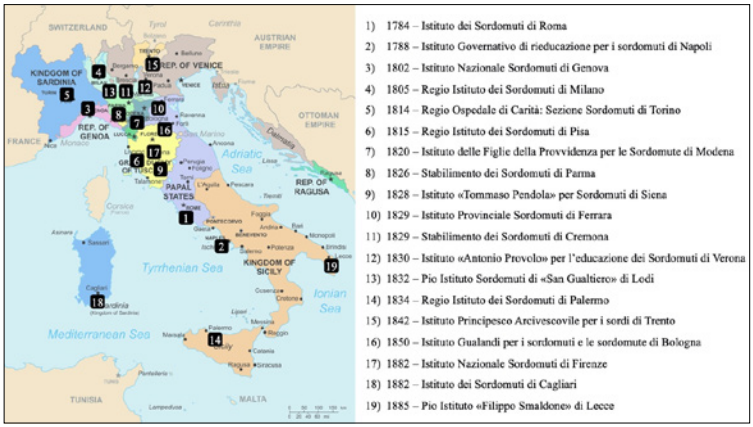
1) 1784 – Istituto dei Sordomuti di Roma
2) 1788 – Istituto Governativo di rieducazione per i sordomuti di Napoli
3) 1802 – Istituto Nazionale Sordomuti di Genova
4) 1805 – Regio Istituto dei Sordomuti di Milano
5) 1814 – Regio Ospedale di Carità: Sezione Sordomuti di Torino
6) 1815 – Regio Istituto dei Sordomuti di Pisa
7) 1820 – Istituto delle Figlie della Provvidenza per le Sordomute di Modena
8) 1826 – Stabilimento dei Sordomuti di Parma
9) 1828 – Istituto «Tommaso Pendola» per Sordomuti di Siena
10) 1829 – Istituto Provinciale Sordomuti di Ferrara
11) 1829 – Stabilimento dei Sordomuti di Cremona
12) 1830 – Istituto «Antonio Provolo» per l'educazione dei Sordomuti di Verona
13) 1832 – Pio Istituto Sordomuti di «San Gualtiero» di Lodi
14) 1834 – Regio Istituto dei Sordomuti di Palermo
15) 1842 – Istituto Principesco Arcivescovile per i sordi di Trento
16) 1850 – Istituto Gualandi per i sordomuti e le sordomute di Bologna
17) 1882 – Istituto Nazionale Sordomuti di Firenze
18) 1882 – Istituto dei Sordomuti di Cagliari
19) 1885 – Pio Istituto «Filippo Smaldone» di Lecce
SWITZERLAND
AUSTRIAN EMPIRE
KINGDOM OF SARDINIA
REP. OF VENICE
REP. OF GENOA
OTTOMAN EMPIRE
FRANCE
Adriatic Sea
PAPAL STATES
REP. OF RAGUSA
KINGDOM OF SICILY
Tyrrhenian Sea
Ionian Sea
Mediterranean Sea
TUNISIA
MALTA

Figure 2 The deaf Institutes in Italy.
`http://www.istc.cnr.it/mostralis/pannello10.htm`

In Italy, the first school for the deaf was opened in Rome in 1784 by the Abbot Tommaso Silvestri (1744-1789). Although he was trained for six months by De L'Épée, he chose a spoken-oriented method. He was convinced that only words had the power to distinguish men from beasts. The oral method was used until 1841, when the school was converted to signs.

As mentioned in the Historical Background [SOCIO-HISTORICAL BACKGROUND 1], Padre Giovan Battista Assarotti is considered the real father of the sign-oriented method in Italy. In his school in Genoa, he adopted the visual-gestural method spread by Sicard. Assarotti founded his Institute in 1805, and his motto was *The best method is to have no method!* He created his own method, but unfortunately it has been lost because he never produced any kind of written documentation. Probably, thanks to the books published by De l''Épée and Sicard, the French signs were imported to Genoa, influencing the Italian signs, but no proof of this contamination exists.

In the same vein as Assarotti, the priest Tommaso Pendola founded the *Royal Tuscan Institute for Deaf-mutes* in the 1828 in Siena, financed by Leopold II of Tuscany. Deaf students from the whole region were welcomed and trained in order to be employed in professional activities. However, in 1871 the educational system was changed and converted to an oral method.

In 1849 (until 1950), in Bologna, Don Giuseppe Gualandi and his brother Don Cesare Gualandi founded an Institute for Deaf children, with the purpose of educating and guarantee a proper catholic instruction for their deaf students. Cesare and Giuseppe Gualandi visited many specialized centres around Italy in order to document the numerous experiences and apply the best methodology. Even if the acquisition of the spoken language remained the primary aim of the brothers, their methodology was tailored to each single student, everyone being considered as an individual case. The attempt was to avoid the overrule of a unique and universal top-down method to be applied in all situations, and to create a bottom-up method, as flexible and adaptive as a *dress to cut or extend depending on the real cases*. However, this individual education required an open-minded comparison with other schools and deaf Institutions, in order to start a national dialogue and create a playing field between the different approaches. In the same vein, on January 1st, 1872 in Siena the magazine *L'educazione dei Sordomuti* (The education of Deaf-Mutes) was created with the purpose of connecting specialized teachers to exchange opinions and solve common problems.

Meanwhile, in 1841, pope Gregory XVI sent the new directors of the Roman Institute for the deaf (the one funded by the Abbot Silvestri) to learn Padre Assarotti's methodology. From that moment on, the oral method of the Roman Institute was changed, following the Assarotti's approach based on signs and fingerspelling. However, this new input lasted only 20 years, and in 1865 Padre Muti e Madre Kuntz (director of the opened female section) restored the spoken-oriented education. After the Italian Unification, the Institute passed under the authority of the Ministry of Public Instruction, and in 1889 was moved to via Nomentana 54, where it can still be found today.

Generally, during the first part of the 19th century, signs were mostly used in the Deaf Institutes, or at least admitted as a transitional phase to proceed with an oral/written type of education. In that period, the emphasis was on learning and the linguistic developments of deaf children appeared to be valuable. However, towards the end of the century, this mixed approach changed in favour of a purely oralist method. The reason for this important turning point can be found in the fact that most of the Institutes concentrated in the northern part of Italy, precisely in the Lombardo-Veneto Kingdom. This area, being part of the Austro-Hungarian Empire, was very much influenced by the nearby Germanic culture. The progress in biology, medicine and linguistics opened new questions on educational discussions and the oral methodology was considered part of this progress. Another relevant factor was the Unification of Italy

in 1861, accompanied by the pressure to homogenize all local differences. Such processes led to the suppression of cultural and linguistic minorities, in favour of one unique national culture and language. In the same spirit, educators had been considering the relevance of training students to the use of the spoken language, used by the majority of the Italian population.

The first Congress of educator took place in Siena in 1873 and concluded that signs had to be considered as a middle phase until the Deaf students had acquired sufficient control of the oral language. Some years later, the Universal Congress in Paris (1878) claimed that the best way to include Deaf people in the hearing society was articulatory-oriented, namely based on lip-reading. However, a crucial point in the history of signs was the International Congress of Milan (6-11 September 1880) chaired by the Abbot Giulio Tarra, a strong supporter of oralism [SOCIO-HISTORICAL BACKGROUND 1]. The participants invited at the Congress supported the superiority of the oral method, except for the convinced opposition of Thomas Gallaudet, who were in favour of a mixed method. Indeed, at the end of the Congress, a vast majority voted for the purely oral system as the preferred one and signs were banished because they were considered to be damaging the acquisition of words. After the Congress, all European Deaf schools became oralist, except for the Unites States where signs-oriented methodologies and oralistic approaches continued to coexist. Neither the opinions nor the requests of Deaf people were considered during the Congress of Milan, and in this situation several associations and friendly societies were founded by Deaf people in different Italian cities, such as Milan (1874), Turin (1880), Genoa (1884) and Siena (1890). These types of societies represent the first social representational forms of the Deaf community and will lead to the development of the national body for the representation of Deaf people: ENS.

In 1911, the *First International Congress of deaf-mutes* took place in Rome, in order to demand improvements in the educational system, in the workplace and in all spheres of society. Ten years later, the *Second International Congress* in Rome demanded the extension of the legal recognition of compulsory schooling to all deaf-mutes. Meanwhile, in 1920 with the support of Giuseppe Enrico Prestini the *Federazione Italiana delle Associazioni fra I Sordomuti* (FIAS, Italian Federation of Associations among Deaf-mutes) was established during the *First Meeting of Italian Deaf people*. Thanks to the pushing actions of FIAS, in 1923 the Gentile Reform apply the extension of the mandatory school to deaf children. Since its unofficial establishment in 1932 as the *Deal of Padua* managed by Antonio Magarotto until the official recognition with the Law no. 889/1942, ENS fos-

tered and promoted rights and equal opportunities for Deaf people. The increased awareness among the Deaf community during this period led to reopen the debate about public schools with equal opportunities for all children [SOCIO-HISTORICAL BACKGROUND 1].

In the following decades, during the years 1949-1954, special schools and differentiated classrooms were created in order to grant education to all people with impairments. However, the level of illiteracy among deaf was still high in the census of 1995. 1962 was the year in which compulsory schooling was extended to middle school.

Finally, after many discussions and disagreements, the situation changed with the Law no. 517/1977 which stated the possibility for the families of deaf children to make a choice: they could continue to attend classes at the special schools for the deaf or they could decide to send their deaf children to public schools receiving re-educational moments offered by public or private services.

Since then, doctors rather than educators were engaged in solving the problem of language acquisition and oral skills of deaf children. In fact, with the Law no. 833/1978 the local agencies set up a new *National Health Service* and the local health center became responsible for the rehabilitation of subjects affected by any kind of impairments.

Although the Law no. 517/1977 represents a crucial change in the educational methods for the deaf, the situation during the 1980s was chaotic and vague, most of the families opted for the public hearing schools, because they considered the public schools superior to the special schools, but the teachers received no training on the most appropriate educational methodology for deaf students. Furthermore, very few assistants were assigned to the classes with deaf students, and these assistants also frequently lacked specific competencies about deafness. At the time, there was not enough knowledge about the linguistic issues of deaf children, in particular, the fact that they should have better mastered the spoken language was ignored. The interpreters were not very widely spread, and in addition, most of the deaf students have been raised with an oralist-oriented education, without any language acquired spontaneously (as first languages are). The paradox was that the deaf students who were often left alone in the classroom, without the support of specialized support teachers or educators, were unable to learn either the Italian language or signs.

A crucial step toward the improvement of the educational conditions for deaf scholars was reached with the Article no. 13 of the Law no. 104/1992 which established the presence of support teachers and individual communication assistants for people with physical or sensory impairments. These professional profiles were already

mentioned within the Law no. 616/1977, however only with the Law no. 104/1992 their presence became mandatory. The individual assistant has the function to facilitate and support the communicative relationships of the deaf student with teachers and other scholars, while the support teacher profile has been introduced to facilitate the educational programs and to enhance the growing of scholars. The presence of these professional profiles in the schools had improved the educational programs.

One of the contemporary educational models is the bimodal bilingualism program, which consists in training deaf scholars by fostering the development of both communication channels (speech and signs). The Bimodal-bilingualism describes the knowledge of languages based on different channels, for example the vocal-auditory channel of spoken languages and the visual-gestural channel of sign languages. In 1989, the first experiment was conducted at the National Deaf Institute in Rome, starting with a class in the elementary school. Later, the experiment was applied to the kindergarten and then also opened up to hearing children. In 1994, a similar experiment took place in Cossato (a small town in Piemonte) in a public Nursery School. Although in the school there was no specific expertise in LIS, the parents of three deaf children decided to enrol their infants anyway. The program was strongly supported by the teachers and by a group of speech therapists who together wrote the educational plan and methodology. Another interesting experiment started in 2006 at the Institute Santini in Noventa Padovana (a town near Padova, in Veneto), and finally in 2008 in Milan a new program was initiated, entirely sponsored by local public institutions and coordinated by ENS.

Recently, the project *MoSSSis* (Model of integrated special school services for Deaf individuals) was presented to the Ministry of Education by the *AIES* (Italian Association of Educators of Deaf Children) which stated a national educational plan for integrating Deaf and hearing children [SOCIO-HISTORICAL BACKGROUND 3.2]. One of the purposes of the project was to increase and support the knowledges of teachers and educators of Deaf children and to promote bilingual programs. The project encouraged an important lifelong learning attitude in order to prevent the situation of Deaf adults returning to illiteracy.

Nowadays, in Italy, the visibility of bilingual programs is rising, especially into the Deaf community and an increasing number of deaf children are included in bilingual bimodal educational programs. Furthermore, today sign language is taught as a communication form in other educational environment, even to hearing children who show spoken language impairments and to children with other types of

physical and/or intellectual disabilities, among other Down's Syndrome (Trisomy 21), Landau-Kleffner Syndrome, and Autism Spectrum Disorders (ASD).

New bilingual educational programs have been also submitted within the Decree Law no. 302, which was approved by the Senate Chamber on October 2017. The Decree Law no. 302 represents a further attempt, after many others failed, to official recognize LIS and to promote the social inclusion of Deaf and Deafblind people. However, so far it remains still not discussed by the Chamber of Deputies [SOCIO-HISTORICAL BACKGROUND 3.2].

The absence of national language planning officially approved by the Italian Government and the lack of funds for supporting services and tools, in order to improve the integration of deaf students, represent serious obstacles to the final disclosure of LIS in educational and training environments.

Information on Data and Consultants

The descriptions in this chapter are based on the references below. The video clips exemplifying the linguistic data have been produced by a native signers grown in the northern part of Italy one of them belongs to a younger generation of signers.

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3 Status

Summary 3.1 Current legislation. – 3.2 Language policy. – 3.3 Language attitudes.

LIS has still not been recognized as a minority language by political institutions. However, hospitals, courthouses, notaries, schools, and other public institutions make reference to this language requiring its use in public and private situations. They thus recognize its importance and status by requiring the presence of interpreters or communication assistants. This contradictory situation creates a gap between the social condition (status) of LIS, supported by local and national associations, and its official recognition.

The present chapter addresses the following topics: ongoing issues about the current legislation on LIS [SOCIO-HISTORICAL BACKGROUND 3.1]; specific language policies [SOCIO-HISTORICAL BACKGROUND 3.2]; and language attitudes, namely the opinions concerning the status of LIS at the population level [SOCIO-HISTORICAL BACKGROUND 3.3].

3.1 Current legislation

In Italy, the social attitude toward LIS has changed in the past thirty years. In the 1980s, Deaf people still limited their use of signs to closed environments. Indeed, the domain of LIS was spread in unofficial occasions, like daily life experiences. Signs barely appeared in

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classroom and in public occasions: the consequences were the marginalization of Deaf signers from public contexts, as conferences or public lectures. Furthermore, the lack of knowledge about this deficit and common misconception, like the fact that Deaf people are also mutes, contributed to the exclusion of Deaf signers from society (for further information, see [SOCIO-HISTORICAL BACKGROUND 3.3].

At the European level, the perceptions and conceptions about acoustic deficit started to change politically in the last decades thanks to the *Rights of people with hearing impairments* Statement promoted by the *United Nations Educational Scientific And Cultural Organisation* (UNESCO) on 5 July 1971, and by the first document of the *World Health Organisation* (WHO), called ICIDH (*International Classification of Impairments, Disabilities and Handicap*), spread in 1980. These two documents introduced a new definition of deficit, namely, the individual status of a person was no longer associated with his/her physical conditions only, but it started to be also considered at the social and relational level. In particular, the document distinguished between impairment, disability, and handicap. Impairment was defined as the lack or the anomaly of a psychologic, physiologic, or anatomic function. Disability was defined as limitations to the capacity to undertake typical human activities, limitations which are consequential to the impairment. Finally, handicap was defined a disadvantageous condition due to an impairment or a disability limiting the subject with respect to age, gender and sociocultural factor. Many years later, the UNESCO's *Salamanca Statement and Framework for Action on Special Needs Education* (June 7-10, 1994) took place in Spain. It enhanced the necessity that ordinary schools should accommodate all children, regardless of their physical, intellectual, social, emotional or linguistic conditions. Simultaneously to the increasing of care about inclusive educational programs and conceptual redefinitions of disabilities, linguistic issues related to the recognition of sign languages drew the attention of various political institution and organisations. The establishment of the *World Congresses of World Federation of the Deaf* (WFD) played a fundamental international role in ensuring equal rights for deaf people around the world. The WFD was established in Rome on September 23, 1951. To date, every four years the WFD organised a World Congress about deaf-related topics to advance the human rights and promote sign languages worldwide. Since 1958, the WFD has a consultative status in the UNESCO. Thanks to this role, *Resolutions* promoted in the Congresses affected the international debate about Deaf people conditions. In collaboration with WFD, the promotion of *European Parliament Resolutions on Sign Languages for Deaf*

People (June 17, 1988) and *on Sign Languages* (November 18, 1988) represented crucial steps toward the achievement of the awareness about Deaf rights and identity, fostering the official recognition of sign languages. Both *Resolutions* also called upon member states to ensure European funding programs in the field of education and employment, including training of sign language tutors and interpreters. Later on, the European Council in Strasburg drew the *European Charter for Regional and Minority languages* (November 5, 1992) for the protection and promotion of languages used by traditional minorities. To date, many years after the proclamation of the *European Charter*, the Law (482/1999) for preserving the status of minority languages has been approved in Italy granting every year special funds to support dialects and other linguistic minorities. However, the concept of minority language is strictly related to the existence of communities using the language in a specific territory. Therefore, LIS is not included among linguistic minorities because it is not associated to a specific local territory, rather it is spread all over the country.

In 2006, the United Nations (UN) promoted the *Convention on the Rights of Persons with Disabilities* which represented a fundamental point towards the achievement of equal opportunities for people with deficits in that it granted them the fundamental human rights and freedom. The general principles of the Convention are: i) respect for inner dignity, individual autonomy and personal independence of people, ii) non-discrimination, iii) full participation and inclusion into society, iv) respect for the differences and in particular for people with deficit as part of human differences, v) equal opportunities, vi) accessibility, vii) equal opportunities between men and women, and viii) respect for the developing of the capacity in people with disabilities who have not yet come of age. The Convention also includes specific dispositions concerning the protection of deaf people, supporting the importance of the recognition of their linguistic and cultural identity. After the promulgation of the Convention, the Italian Parliament opened an internal discussion in 2009. The Parliament, through the Law no. 18 (March 3, 2009) authorized the ratification of the Convention and, finally, on June 14, 2009 the Convention entered into force. The approval of the Convention forced the Italian legislator to promote an internal legislation according to the principles of the law. Nonetheless, this law made no mention to LIS. In fact, only in March 2011, a special committee of the Italian Parliament proposed the *Deaf People's Rights and Recognition of Italian Sign Language* (no. 37/S) bill for the recognition of LIS. The bill was discussed and approved by the Senate Chamber, but the discussion was never concluded. The bill considers deafness from two different perspectives:

pathological, which describes deafness simply as an auditory deficit, and *sociocultural* which perceives deafness as a cultural and sociolinguistic condition. Although the bill recognized the linguistic status of LIS, it still did not include LIS among other minority languages. The exclusion of the sign language from the status of minority languages could lead to serious consequences, especially concerning the financial funding necessary for language policy and planning [SOCIO-HISTORICAL BACKGROUND 3.2]. Indeed, the bill established that all funding had to be locally found, and that the State Administration was not responsible for it. Despite the indifference of some political institutions at the national level, the bill represented an important step towards achieving greater awareness of the essential needs of the Italian Deaf Community.

It is important to mention that not all deaf people are signers and support the recognition of LIS. Many deaf people support the acquisition of spoken Italian fighting against the spread of signs. In Italy, one of the main opposing groups to sign language is the association FIADDA [SOCIO-HISTORICAL BACKGROUND 3.2]. Among others, a reason for their opposition is the fear of a further marginalization of Deaf people, caused by the spread of the sign language. The consequences of this split among deaf people contribute to slow down the process of the recognition of LIS.

After further unsuccessful attempts, in October 2017 the Senate Chamber approved the Decree Law no. 302 (*Legge quadro sui diritti di cittadinanza delle persone sorde, e con disabilità uditiva in genere e sordocieche*) and others (no. 1019; no. 1151, no. 1789; no. 1907), which includes dispositions regarding: i) the importance of removing communication barriers, ii) the official recognition of LIS and tactile Italian Sign Language (LISt), and iii) the promotion of the social inclusion of deaf and deafblind people. Furthermore, the Decree Law declares the freedom to choose the best channel of communication (spoken or signed), promoting social integration in schools, universities, working environments and health services. It also grants accessibility to historical, artistic and cultural heritage and political participation. Moreover, the Draft Law establishes a unique national register for interpreters of LIS and LISt, since today this professional rule is still locally coordinated. However, like the previous Drafts, the effort to monitor the implementation of the Law, and to penalize its violations, is assigned to local administrations and it does not include additional expenses for the national Government. The consequence is that services are not granted to people with deficit, since very often local administrations are not able to fund projects of inclusions.

The Decree Law reopened a heated discussion among members of the Deaf community and their opponents, which has been ongoing on social media and in public spaces. Once again, the final decision depends on the Chamber of Deputies, which has not dealt with the issue yet.

Although LIS has not been officially recognized yet, it is unofficially supported by local and national institutions. For example, LIS courses are often directly cosponsored by local administrations, and LIS interpretation is currently provided in court cases, where Deaf people are involved. Some funding comes from the budgets designated for local welfare, health or educational services. However, none of this can be considered as a systematic language planning [SOCIO-HISTORICAL BACKGROUND 3.2]. Furthermore, some Italian regions have already locally recognized LIS supporting its dissemination in order to grant the free expression of identity and equal rights to Deaf people. So far, the regions which have officially promoted the recognition of LIS are: i) Valle d'Aosta (Resolution: '*Iniziative per un intervento legislativo per il riconoscimento ufficiale della Lingua dei segni*' approved on November 9, 2006), ii) Calabria (no. 46, approved on November 23, 2007), iii) Sicilia (Regional Law no. 23, November 4, 2011), iv) Piemonte (Draft Law no. 86, October 29, 2010 and approved on July 24, 2012), v) Campania (Regional Draft Law no. 21/2012), vi) Abruzzo (Regional Law no. 17, March 17, 2014), vii) Lazio (Regional Law no. 6, May 28, 2015), viii) Lombardia (Regional Law no. 20, August 5, 2016), ix) Basilicata (Regional Law no. 30, November 20, 2017), x) Veneto (Regional Draft Law no. 220, February 1, 2017) unanimously approved on February 15, 2018.

3.2 Language policy

The national political situation is chaotic and not many sources exist in order to trace back the historical stratifications of legislative proposals and Draft Laws which have had no effect.

The bill (no. 37/S) proposed in March 2011 included an explicit reference to the use of LIS in public and private context. Specifically, it included a statement (art. 2, subsection 1b) concerning the use of LIS in schools and universities and the realisation of specific programs for the education of professional figures, such as teachers and interpreters. It also stated that LIS must be integrated among the courses offered in both undergraduate and postgraduate programs, promoting the use of LIS and other technologies among students and teachers in order to allow the communication with deaf people. Fur-

thermore, the bill includes dispositions to promote the use of LIS in public and private administrations and in the media, through subtitles and other tools, to grant full accessibility to information. Finally, it established that hearing aids, speech therapy and other technical means must be provided along with LIS, in order to remove communication barriers and to leave deaf people the freedom of choice. The bill was discussed in the Chamber of Deputies in May 2011, but after this debate a totally different approach was adopted. Representatives of all political parties accepted the use of the term *Linguaggio o tecnica comunicativa mimico-gestuale* (lit. 'mimed-gestural language or communication technique') rather than Italian Sign Language. Such definition appeared to be a serious step back within the process of LIS promotion. In fact, the adoption of this term contradicted the international declaration and ignored thirty-years of linguistic research supporting the dignity of this language. Moreover, the participants agreed in claiming that technological innovations make sign languages useless, thus ignoring the fact that not all kinds of deafness can be treated with the use of hearing aids. Such bill probably enhanced the misconception that bilingualism negatively interferes with the correct acquisition of the spoken language. On the contrary, there is increasing evidence, both at an international and national level that the use of the sign language promotes the correct acquisition of the spoken language. Thanks to an increasing of political and social measures, many schools and educational centres, today, are inclined to integrate sign language as a social inclusion tool for Deaf children. Bilingual/bimodal education programs are growing in visibility, especially with the rise of awareness of the Deaf Community [SOCIO-HISTORICAL BACKGROUND 2.4]. However, the lack of official language planning represents an obstacle to the final disclosure of LIS in educational and training environments.

New encouragement for the promotion of LIS and LISt comes from the Law no. 302 of 2017, even though no national funds are provided for supporting the organisation of courses and educational structures. As a result, training courses in LIS and LISt and other initiatives depend on local and national associations which support Deaf communities.

Most of the initiatives which support and promote the recognition of LIS are carried out by the *Ente Nazionale Sordi*, ENS ('Italian National Agency of the Deaf') [SOCIO-HISTORICAL BACKGROUND 1]. It is present across Italy through local clubs and it represents a crucial national referent for Deaf people in the dialogue with political institutions. Furthermore, since its creation (1932), ENS promotes the use of sign language at all levels of the everyday life, being primarily involved in the definition of language planning. Specifically, a specialized department

of ENS takes care of issues related to educational policies, university accessibility, bilingualism and training of interpreters and other professional figures. ENS is not only an association promoting the recognition and use of LIS, but it is also important for the preservation of the cultural heritage related to LIS. Indeed, the libraries of many of the local clubs have collected publications about deafness, sign languages and the Deaf world and they represent an important archive for Deaf culture and history. Moreover, ENS is the promoter of many national and local workshops, seminars and conferences about various topics related to LIS. For the important impact they had, we recall here three conferences on LIS which were held in Trieste in 1995, Genoa in 1998, and Verona in 2007.

However, as anticipated before, the picture is not so homogeneous and favourable everywhere, as in Italy there are also some associations which support a strict oralist tradition and deny the use of LIS for deaf children education. One of the most famous associations overtly against the use of LIS is the *Italian Families Associated for Defending deaf Rights* (FIADDA). According to the members of this association, it is impossible to define a community on the basis of a physical deficit. The association fears that through the official recognition of LIS, deaf people will be kept in a state of cultural, economic and power dependency due to their linguistic closure.

Despite the difficulties that such internal oppositions can create, this debate is a remarkable sign of vitality within the Deaf Community. In the past thirty years, many changes took place which modified the domain of the use of LIS. Thanks to the advances in linguistic and psycholinguistics studies which allowed to prove that LIS is a natural language. The Deaf Community has started to use LIS with pride for everyday communications, and not just in a domestic environment, becoming more aware of its own rights. After the discussion of the bill (no. 37/S) at the chamber of Deputies, a unified movement composed by hearing and Deaf people (*Movimento LIS subito*, 'Movement LIS now') was created online in support of the recognition of LIS. The movement organised a three-day protest in Rome (March 25-27, 2011) to request the return to the original proposal, claiming that the definition of mimed-gestural languages is not just wrong, but offensive.

Together with ENS, another important supporter of the promotion of LIS is the Academic World: universities and academic researchers collaborate to support and give visibility to the importance of LIS recognition. In Italy, research on LIS began in the late 1970s, thanks to a group of scholars at the National Council of Research (CNR). They started with the investigation of the process of language acquisition and lan-

guage mastery in deaf children, which was first analysed by the team led by Virginia Volterra, Elena Pizzuto, and Elena Radutsky, in collaboration with ENS. Soon after, some deaf researchers joined the group: Serena Corazza, Emanuela Cameracanna, Anna Folchi, Paola Pinna, Paolo Rossini, and Benedetto Santarelli. The research carried out by the CNR also focuses on the grammar of LIS, on sign writing projects and on the acquisition of LIS in both deaf and hearing children.

About 20 years later, in the late 1990s, at the University of Salerno, professor Sandro Zucchi opened a second vein of research focusing on the formal aspects of LIS Linguistics. A few years later, he moved to the University of Milan and continued working on this project with professor Carlo Cecchetto from the University of Milan-Bicocca. Quite soon, some deaf people started to contribute to their research. Furthermore, in collaboration with the national association for Deafblind people in Italy (*Lega del Filo d'Oro*), the Milan group started a research project on the tactile variety of LIS, the sign language used by Deafblind people.

A crucial step that allowed to spread LIS within the national borders and later on to train students in the language and linguistics of LIS was the introduction of an optional LIS course among the classes offered at Ca' Foscari University of Venice starting from 1999, thanks to the interest of professor Anna Cardinaletti. In 2002, the Department of Linguistics and Comparative Cultural Studies of Ca' Foscari University of Venice offered the first official bachelor degree program in LIS. Since then, students can choose LIS from 17 foreign languages. Ca' Foscari is very much committed to the promotion of LIS offering both a bachelor's degree (BA) and a master's degree (MA). Today, in the BA program various courses on LIS and Deaf culture are available: three language courses of LIS, three courses of Deaf culture, a course in LIS linguistics, a course in Tactile Italian Sign Language, and two courses in Linguistic for deafness and hearing impairments. The MA program offers a course in Linguistics for deafness and hearing impairments, a general course of LIS and a course in advanced LIS linguistics. In 2011, Ca' Foscari University of Venice hired the first teacher of LIS with a permanent position within an Italian University and, in the same year, a research position was created for a linguist working on sign language linguistics.

From the year 2015, the University of Catania (in its branch in Ragusa) within the course in *Mediazione linguistica e interculturale* ('Linguistic and Intercultural Mediation') offers a BA degree with the possibility to study LIS. The University of Catania has also enrolled a linguist teaching and carrying out research on sign language linguistics and a lecturer of LIS.

Together with the universities of Venice and Catania, one of the main institutions which provides formational courses of LIS is ENS. Within ENS, a central administration provides detailed guidelines establishing the number of grades, the main objectives and the contents to be acquired in each grade. The general program of LIS courses is divided into three main stages: the first one consists in a short introduction to LIS (20-40 hours) which provides a general overview of LIS and Deaf culture; the second focuses on the teaching of LIS language and is structured into three levels: beginner (120 hours), intermediate (150 hours) and advanced (210 hours) level, which provides extensive theoretical and practical knowledge, and the third stage consists in the professional grade for training students in three different professions: technical operators, educators and interpreters.

Before each course starts, FALiCSEU (a specific department of ENS responsible for the quality of teaching programs) has to approve them. For this reason, three national registers of LIS teachers have been created: one for teachers of language, one for teachers of grammar and Deaf culture and one for coordinators. The teachers for the practical part are generally Deaf, while the teachers of the theoretical part may also be hearing people.

The involvement of ENS and the academic world plays a crucial role in the standardization of LIS, which is important to gain official recognition. An important project supporting standardization was developed in 2007: La Sapienza University of Rome, the University of Milan-Bicocca, and Ca' Foscari University of Venice received a two-year grant (2008-2010), PRIN 2007: *Dimensioni di variazione nella Lingua dei Segni Italiana* ('Dimensions of variation in Italian Sign Language'), for investigating linguistic variations in LIS. The project led to the creation of the first LIS Corpus [SOCIO-HISTORICAL BACKGROUND 4.3]. Indeed, the collection of a corpus is one of the most important tasks for language planning. It represents an attempt to improve the adequacy of form and structure of a language and to trace the source of variability. It is related to the issue of standardization processes and language documentation which are necessary to understand the developmental stages of a language. More specifically, the existence of a language corpus allows to account for the variability among signers due to many social factors, as their geographic and family origins, their age, gender, educational background, and so on. In particular, the LIS Corpus has detected a strong effect of age among signers: young LIS Deaf signers use more standardized forms than older signers [SOCIO-HISTORICAL BACKGROUND 4.4]. Although variation is a feature of all natural languages, the standardization process of a language has consequences for acquisition planning, in our specific

case, it can facilitate the acquisition of LIS as a second language, reducing the communication obstacles caused by its great variability.

Italian Universities also promote the visibility of LIS by organising workshops, meetings, national and international events. In 2004, the conference *Verbal and Sign Languages, Comparing Structures, Constructs and Methodologies* was held by the University of Rome-La Sapienza; in 2005 the conference *Signa Volant* was organised by the University of Milan-Bicocca; in 2011, 2014 and 2016 the University Ca' Foscari of Venice co-organised the conference on *Formal and Experimental Advances in Sign Language Theory* (FEAST), an international conference which focuses on formal and experimental approaches on sign languages. In order to increase foreign exchanges among Deaf people and Deaf communities, recently the Siena School of Liberal Arts introduced a Deaf studies program, which includes a semester where one class is taught in American sign language (ASL). A fundamental opportunity for Deaf people is represented by *the Mason Perkins Deafness Fund* (MPDF onlus), created in 1985, which provides scholarships for Italian Deaf students. The winners receive the opportunity to spend one academic year at the American Gallaudet University. The association also promotes the organisation of accessible cultural events and the creation of a national and international network of people who work in support of the Deaf community. Similarly, every year, the *Fulbright-Roberto Wirth Fund Scholarship at Gallaudet University* offers the opportunity to spend one academic year at Gallaudet University to Italian citizens. The winner can specialize in deafness studies supporting deaf or deafblind children research in Italy.

In the last years, two European projects have been developed at academic level thanks to the collaboration of Universities. The first project: COST Action IS1006 (2011-2015) *Sign Gram: Unraveling the grammars of European sign languages: pathways to full citizenship of deaf signers and to the protection of their linguistic heritage* led to design the SignGram Blueprint, the first guide for sign language grammars. The chair of the Action was Prof. Josep Quer (Universitat Pompeu Fabra). Ca' Foscari University of Venice, Bicocca University of Milan and La Sapienza University of Rome were the national research groups involved in the project. The second European project is *SIGN-HUB: preserving, researching and fostering the linguistic, historical and cultural heritage of European Deaf signing communities with an integral resource*. It is a 4-year research project (2016-2020) funded by the European Commission within Horizon 2020 involving different European and non-European countries (Spain, Italy, Netherlands, Germany, Turkey, France, and Israel). The national universi-

ties involved in the project are: the University of Milan-Bicocca and Ca' Foscari University of Venice. Aim of the project is the creation of an innovative and inclusive resource hub for the linguistic, historical and cultural documentation of the different sign languages, for supporting Deaf communities and for sign language evaluation on clinical and school frameworks. The SIGN-HUB project has developed a digital platform to host: i) a digital grammar of 6 sign languages (DGS, LIS, LSC, LSE, NGT, TID); ii) an interactive digital Atlas sharing the linguistic properties of sign languages; iii) the development of diagnostic tests for sign language assessment, and iv) the creation of a digital archive of older signers' linguistic and cultural heritage.

Another relevant issue for increasing the possibility of the official recognition of LIS consists in language planning. After several local experiments [SOCIO-HISTORICAL BACKGROUND 2.4] an important attempt to set up a national plan for the education of deaf children was the project entitled *Model of integrated special school services for Deaf individuals* (MoSSSiS) presented to the Ministry of Education by the *Italian Association of Educators of Deaf Children* (AIES). The project aimed at offering an educational model which successfully integrates hearing and deaf children, involving a national centre of coordination and local branches. The national centre promotes specific training courses for educators and teachers of Deaf children, and provides teaching materials and relevant documentations on the education of deaf children. Often special needs teachers received general training for covering a broad variety of children with different impairments, but the issues related to deafness are not properly faced. Moreover, this project wants to create specific bilingual programs and a lifelong learning program which prevents Deaf adults to return to illiteracy.

Evidence for a greater awareness on the importance of LIS comes from the increasing of professional roles and figures related to sign language: language teachers, interpreters, cultural mediators and educators [SOCIO-HISTORICAL BACKGROUND 2.4]. As for the professional training of sign language interpreters, there are two important associations in Italy: ANIOS and ANIMU. The former is mostly based in the northern part of Italy, and the latter more in the south. The competence of LIS interpreters has increased in the last few decades, but the interpretation from LIS to other sign or spoken languages (and from a foreign sign or spoken languages into LIS) still needs to be improved to ensure access for Deaf people to international scenarios. Cultural Mediators are professional figures who work in official situations such as the public administration, public security, social and welfare services, facilitating communication among Deaf and hearing adults. As for educators, they are facilitators who work

in public schools within educational programs for deaf children, in order to support the integration between Deaf and hearing children. The improvement of the educational planning for Deaf people is crucial to assure them the possibility to have access to highly qualified professional jobs.

3.3 Language attitudes

This section provides a description of the way in which signers and non-signers perceive LIS. Since this language has long been considered an inferior communication system, the attitude toward signs differs across generations of signers and non-signers.

The Law 517/1977 facilitated the inclusion of Deaf people into public social contexts, but it had no impact on the linguistic condition of the Deaf community. When and how the situation started to change it is hard to say. It is likely that LIS started to raise awareness along with the development of the research investigating its grammar and the impact on language acquisition.

Among the precursors of this important process, it is worth mentioning Massimo Facchini, the director of the phonological centre in Bologna. At the end of the 1970 he reopened the discussion about the effectiveness of *gestures* in deaf training, since *gestures* have often been forbidden in the past.

Further scientific research developed in Rome, following the pioneering studies of Stokoe on American Sign Language (ASL), thus providing further evidence for the importance of sign language investigation. Virginia Volterra, Elena Pizzuto, and Elena Radutzky have been the first researchers to take steps in this direction. Thanks to them, the first meeting on sign language studies took place in Rome at the Psychological Institute of CNR in February 1979.

In June of the same year, the *First International Symposium on Sign Language Research* was organised in Stockholm, followed by another one in Copenhagen sponsored by NATO. From then on, many conferences have been organised in Italy, testifying an increasing wave of interest in the sign language field.

The great interest of academics leading to the recognition of sign languages as fully-fledged natural languages developed in a period in which Deaf people were still not aware of the richness of their own language. As a matter of fact, in those years, signs were used in very familiar contexts or in the Deaf clubs, and their use was purposely avoided in public situations for reasons of shame. Italian hearing people used the term *sordomuto* (‘deaf and dumb’) to refer to

deaf people, because of the common misconception that Deaf people were also mute (nowadays the Law 95/2006 has changed the term into *deaf*). The local and individual variation of signs was significant, many Deaf people with a strong oral education only used signs in support of spoken Italian, thus increasing the confusion on the boundaries between signs and the spoken language. Moreover, the few existing interpreters were only called to translate signs from spoken Italian, no translation from signs to the spoken language was provided for Deaf signers.

In such a context, Deaf people looked suspiciously at the rising interest of academics on LIS, as they considered inappropriate that hearing academics studied a language considered exclusive property of the Deaf Community. This is one of the reasons why Deaf people continued for several years to use the term mimic-gestural language in opposition to the term LIS, which was coined by academics. Indeed, the term *Italian Sign Language* was created in order to distinguish gestures from signs and to support its status as a natural language.

Together with the increase of the linguistic research on LIS, it arose the necessity to properly train interpreters. The first to be officially trained were the interpreters involved for the *Third International Symposium on Sign Language research* organised in Rome in 1983. Nowadays, the CNR has become one of the beating hearts of sign language research and is a proactive promoter in its dissemination all over Italy.

Starting in 1986, some scholarships offered by the Association *Mason Perkins Deafness Fund* allowed young Deaf students to attend courses at the Gallaudet University in Washington [SOCIO-HISTORICAL BACKGROUND 3.2]. After this experience, these students became important reference points for fostering cultural and educational events in their own cities promoting LIS. In so doing, the attitude of deaf people towards their own language started to change and, in the same period, some collaborations between hearing and Deaf communities were created with the same will of promote LIS courses and cultural events. We mention, among others, *SILIS* (group for studies and information of LIS) created in Rome in 1989, the cooperative *DIRE* opened in Turin in 1990 and *Orgoglio Sordo* ('Deaf Pride') started in Milan in 1990.

Nowadays, Deaf people are aware of the status of their own language and use LIS in public with great pride. Actually, the number of Deaf users increases year after year, and there is a deeper consciousness about the difference between LIS and Signed Italian [SOCIO-HISTORICAL BACKGROUND 2.4].

During the last few decades, the attitude of hearing people has changed as well, and LIS courses have become extremely popular.

This led to the necessity of creating the first collection of signs and the first vocabularies to facilitate the learning process [SOCIO-HISTORICAL BACKGROUND 4.2]. Moreover, the increased possibility developed in the last years of being provided with interpreting services, lead more Deaf students to attend university and undertake the academic career.

Crucial in the process of attitude change towards sign language has been the spreading of LIS through the media. Since 1993, several editions of the national TV news are interpreted in LIS every day representing a key source of information for Deaf people, especially among the older signers. By 1995, the President's New Year speech is interpreted in LIS. Moreover, some documentaries on LIS started to be made and transmitted via public channels, among other: *Segna con me* ('Sign with me'), a film documentary on LIS realised by Silvia Bencivelli and Chiara Tarfano and broadcasted on *Rai Storia* on September 26, 2015.

In the last years, Deaf artists and LIS started to appear on TV or have been called into public shows, increasing the visibility of the Deaf community. Examples are the Silent Beat hosted by Fabio Fazio in *Quello che (non) ho* ('The things I do (not) have') broadcasted on La7 (May 16, 2012), the singer Daniele Silvestri who appeared with an interpreter at *Sanremo*, a very popular Italian music festival, or the Deaf rapper Eugenio Scarlato, who participated at *Italia's Got Talent*, and many others (for further information see [SOCIO-HISTORICAL BACKGROUND 2.3]. All these events are contributing to deeply changing the perception of signs for both signers and non-signers.

Surely, the increasing awareness and knowledge of sign languages is parallel to the technological developments. The most important resources used by Deaf people are digital technologies and the internet. ENS's main websites provide daily information on the community, local association activities and everyday life. Beside these, social networks and video blogs (*Vlogs*) are the preferred platforms for sharing opinions and comments among the members of the Italian Deaf community. Younger Deaf signers are surprisingly not the unique internet users: the 9.92% of signers over fifty-years old regularly use the Internet for communication as well. Many web pages regarding sign languages in general have been created in social networks, which have become not only a tool of communication, but also a way through which fostering the standardization and broadcasting of LIS across the country.

Despite these positive signals of general improvements, common misconceptions about deafness are still present, especially among hearing people who have never been in contact with Deaf people and Deaf culture. Deafness has often been defined as an invisible deficit,

indeed a deaf person is not suddenly identifiable, unlike other types of impairments, for example a blind person who may be more recognizable, with a white stick, dog and black sunglasses. Blindness in history has always been recognized as a noble deficit, since blind people attended higher training organisations and could benefit from a significant status in society.

The invisibility of deafness, instead, contributed to the consolidation of false prejudices and misconceptions about deaf people. As mentioned before, one of the most common mistakes concerns the use of the term *sordomuto*, which is often spread among hearing people who have never been in contact with deafness. It is very rare that deaf people are also mute, being this a situation occurring only when deafness is linked to a vocal and articulatory problem. Thus, the term *sordomuto* is wrong and inappropriate, as also stated by the Law 95/2006.

Much worse is the misconception about deaf people who are also considered to be dumb, reminiscence of the old term *deaf and dumb* used in the past. Because of their lack of hearing, many deaf people were institutionalized in clinicals for mental diseases just because of a wrong diagnosis or clinical ignorance. Deaf people were also deported under Nazism and they were analysed by scientists and doctors for eugenics studies, together with other people considered untypical, for example gypsies and homosexuals.

Other false conceptions about Deaf people are related to sign language. Indeed, signs are often considered a rude pantomime through which it is impossible to share complex thoughts and deep meanings. Furthermore, signs are supposed to be dangerous for the acquisition of the spoken language. Although linguistic and psycholinguistic studies have proved this belief to be wrong, it is still widespread in many clinical and educational environments, where doctors and teachers still obstacle and discourage the use of LIS in education. One of the most common misconceptions about sign languages concerns the false belief that signs are universal. For unknown reasons, probably linked to the misconception that signs are not linguistic units but *gestures*, they are believed to be shared by deaf from all over the world. As widely known, every country has its own developed and codified sign language, which, just like spoken languages, can share etymological influences and connections, depending on the historical processes of contact but, being based on arbitrariness, as all natural languages are, differs greatly, especially in the lexicon.

Prejudices and misconceptions represent barriers for the total integration and inclusion of Deaf people in society, this is why it is important to support and spread knowledge and information about this minority language and its community.

Information on Data and Consultants

The descriptions in this chapter are based on the references below. Please see the data and consultant information in these references.

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The SIGN-HUB project: preserving, researching and fostering the linguistic, historical and cultural heritage of European Deaf signing communities with an integral resource.
http://www.sign-hub.eu/.

4 Linguistic study

Summary 4.1 Grammatical description. – 4.2 Lexicographic work. – 4.3 Corpora. – 4.4 Sociolinguistic variation.

The present chapter offers a brief overview of the main linguistic studies investigating LIS. Specifically, the first section [SOCIO-HISTORICAL BACKGROUND 4.1] provides a description of the phonological, morphological, syntactic and pragmatic structures of LIS, comparing their analyses and contributions to the investigation of LIS. The second section [SOCIO-HISTORICAL BACKGROUND 4.2] deals with lexicographic works hinting to some related issues. The third section [SOCIO-HISTORICAL BACKGROUND 4.3] contains a description of corpora and data collected in the last few decades on LIS. The last section [SOCIO-HISTORICAL BACKGROUND 4.4] of this chapter concerns studies on socio-linguistic and diachronic variation of LIS, considering Deaf education, age, gender, and socio-economic background as socio-linguistic factors.

4.1 Grammatical description

The present section offers a broad overview of the research carried out so far on the phonology, morphology, syntax and pragmatics of LIS.

One of the most important studies on LIS, which is considered as a reference for subsequent studies, is *La Lingua dei Segni Italiana* ('Italian Sign Language'), edited by Virginia Volterra in 2004 (previous-

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ly in 1987 *La Lingua Italiana dei segni*). This work includes the very first studies investigating the structure of LIS, offering an overview of its main properties. Another work which provides broad linguistic descriptions of LIS is *Fondamenti di Grammatica della Lingua dei Segni Italiana* ('The Basis of Italian Sign Language'), which was written by Carmela Bertone in 2011. It represents a disclosure grammar and constitutes a structured toolset for LIS courses and people approaching the study of LIS.

In particular, *La Lingua dei Segni Italiana* provides the first description of LIS phonology [PHONOLOGY 2]. The traditional approach used to identify minimal pairs and classes of phonemes is based on four parameters: handshape, place of articulation, orientation and movement. Other key works about phonological studies are Russo Cardona & Volterra (2007) and Lerose (2011).

Corazza & Volterra (2008) identified several handshapes: those productively used to create minimal pairs in LIS, a group of handshapes used exclusively as classifiers, and another group of handshapes used only for initialized signs, namely as alphabet letters.

Verdirosi (2004) identified the different locations where it is possible to produce signs. These locations can be divided into three principal categories: neutral space, body and face parts.

Radutzky & Santarelli (2004) identified orientations that can be assumed by the hands and classified movements grouped into different categories.

In 2004, Franchi supported the introduction of facial expressions as a fifth parameter, responsible for the creation of minimal pairs. Subsequently, a great number of studies investigated this parameter (Fontana 2008; Ajello, Mazzoni & Nicolai 2001; Fontana & Raniolo 2015; Conte, Santoro, Geraci & Cardinaletti 2011).

As for the Morphological system, LIS displays both simultaneous and non-simultaneous processes, involving manual and non-manual components. Various morphological processes are attested. Signs modify their articulation in order to convey: i) plurality [MORPHOLOGY 4], ii) verbal agreement [MORPHOLOGY 3.1], iii) tense [MORPHOLOGY 3.2], iv) adjectival [LEXICON 3.4], and v) adverbial information [LEXICON 3.5].

Morphological phenomena could be summarized i) compounds, ii) derivation, and iii) nominal and verbal inflectional processes. Recently, the mechanism of compounding [MORPHOLOGY 1] was studied by Geraci (2009a) and Santoro (2016). Derivational phenomena [MORPHOLOGY 2] as evaluative morphology, namely diminutives, augmentatives, pejoratives and amelioratives, have been investigated by Fornasiero (2020), while features distinguishing nominal and verbal expressions have been analysed by Pizzuto (2004).

Verbal inflection started to be investigated in LIS by Pizzuto, Giuranna & Gambino (1990), later studies have been carried out by Corazza (2000) Pizzuto (2004) Geraci, Mantovan & Aristodemo (2016). In particular, verbal tenses [MORPHOLOGY 3.2] and aspects [MORPHOLOGY 3.3] have been addressed by Zucchi (2009) and Zucchi, Geraci, Cecchetto and other scholars (2010). Adverbs and their verbal modification [LEXICON 3.5] have been studied by Lerose (2008, 2009).

Classifiers in LIS have been analysed in the past by Pizzuto (1986), Pizzuto, Giuranna & Gambino (1990) and Corazza (1990). Formal analysis of the semantic proprieties of classifiers was proposed in Cecchetto & Zucchi (2006). Mazzoni (2008) provided a detailed description of the classifier system [MORPHOLOGY 5].

Studies on syntax grew year by year, especially since 2000. Word order in LIS has been studied by Laudanna & Volterra (1991), Cecchetto, Geraci & Zucchi (2006), and Branchini & Geraci (2011). LIS allows for a somewhat flexible word order, although native signers clearly prefer the subject object verb (SOV) order [SYNTAX 2.3].

In contrast to the basic word order of constituents, the distribution of sentential complements is more fixed and restricted in LIS. These structures and their relation to parsing and short-term memory have been investigated in Geraci, Gozzi, Papagno & Cecchetto (2008) and Geraci & Aristodemo (2013).

Variation in syntax was also studied by Mantovan (2015), in relation to nominal expressions. In this case, variations have been studied with a focus on linguistic and sociolinguistic factors which can affect the realisation of signs.

In LIS, syntactic analysis also concerns functional elements, i.e. modals, aspectual markers and negative markers which all appear post-verbally in the final part of the sentence [SYNTAX 2.3.1.2]. The same behaviour was found in negative sentences [SYNTAX 2.3.1.4] investigated in Geraci (2006).

Interrogatives [SYNTAX 1.2] have been studied in Cecchetto, Geraci & Zucchi (2006), Bertone (2011), and Bayley, Geraci, Cardinaletti, Cecchetto & Donati (2012). One feature of LIS concerns the position of *wh*-signs in content questions where they occupy the right periphery of the sentence.

Imperatives [SYNTAX 1.3], a previously understudied topic, have been recently investigated in Donati, Barberà, Branchini, Cecchetto, Geraci & Quer (2017).

As for coordination [SYNTAX 3.1], it was recently analysed in Aristodemo, Geraci & Santoro (2016). By contrast, many studies have been carried about subordination, and in particular about relative clauses (Cecchetto et al. 2006; Branchini & Donati 2009; Brunelli 2006,

Branchini 2014) [SYNTAX 3.4] and conditional clauses (Barattieri 2006; Bertone 2011; Aristodemo 2009) [SYNTAX 3.5.1].

So far, few studies have been conducted on pragmatics in LIS; one of these was carried out by Brunelli (2011). He analyses information structures [PRAGMATICS 4], like focus and topic phenomena by giving preliminary accounts of their realisation and syntactic positions, according to a specific formal linguistic theory, for this reason his analysis addresses an audience specialized in linguistics studies. More recently, a study focusing on types of sentence topics has been carried out by Calderone (2020) [PRAGMATICS 4.2]. Other relevant studies about pragmatic issues have been addressed by Celo (2000) and Pizzuto (2009) who studied cohesion; Cuccio & Fontana (2011) and Geraci (2014) who studied the function of the signing space; Amorini (2008); Cuccio & Fontana (2012) and Russo Cardona (2004) who investigated figurative meaning, such as metaphors and metonymy, and by Gianfreda (2011), who analysed the communicative interactions among signers.

Thanks to different research groups in Italy, the number of studies on LIS is growing year by year, however, much topics remain to be investigated. The following table summarizes some relevant studies conducted on LIS over the last 30 years.

Table 1 Overview of relevant studies carried out on LIS

Topic	Main studies
Phonology	Volterra (2004, 2007), Verdirosi (2004), Radutzky & Santarelli (2004), Franchi (2004), Corazza & Volterra (2008), Lerose (2011).
Morphology and Lexicon	Pizzuto (1986), Pizzuto, Giuranna & Gambino (1990), Corazza (1990, 2000), Pizzuto (2004), Cecchetto & Zucchi (2006), Mazzoni (2008), Zucchi (2009), Lerose (2008, 2009), Geraci (2009), Zucchi, Neidle, Geraci, Duffy, & Cecchetto (2010), Santoro (2016), Geraci, Mantovan & Aristodemo (2016), Fornasiero (2020).
Syntax	Laudanna & Volterra (1991), Cecchetto, Geraci & Zucchi (2006), Geraci (2006), Geraci, Gozzi, Papagno & Cecchetto (2008), Branchini & Donati (2009), Aristodemo (2009), Branchini & Geraci (2011), Cecchetto (2012), Geraci & Aristodemo (2013), Branchini (2007, 2014), Mantovan (2015), Aristodemo, Geraci & Santoro (2016), Donati, Barberà, Branchini, Cecchetto, Geraci & Quer (2017).
Pragmatics	Celo (2000), Russo Cardona (2004), Brunelli (2006, 2011), Amorini (2008), Pizzuto (2009), Cuccio & Fontana (2011, 2012), Gianfreda (2011), Cirillo (2012), Geraci (2014), Mantovan (2015), Calderone (2020).

4.2 Lexicographic work

Several lexicographic works have been produced since the research on LIS started. This section provides an account of the most important resources available in this field. Some details concerning the external form of the text (printed or digital), the internal structure of the text (as a proper context for the examples or the inclusion of socio-linguistic and geographic variations), and other specific information about the existing lexicographic work will be provided.

In the past, several collections of signs have been prepared as handouts to support LIS courses. One example of these first attempts is *Il Corso di lingua italiana dei segni* ('The Italian Sign Language Course') written for the course organised by the provincial section of ENS and the Institute of Regional training (IRFOP) in Trieste. Another example is *L'Abecedario della LIS* ('The Spelling Book of LIS'), created for the course in LIS organised in Rome with the support of the CNR. However, these collections have never been published, and have been disseminated only as didactic tools for people who attended the LIS courses.

The first nationally published works are more detailed and present more complex and different internal structures. *I primi 400 segni in LIS* ('The First 400 Signs in LIS') (2008) is the first attempt to create a national list of signs. This work is structured in topics (as the family, the club, the work) and it was collected for Deaf and hearing people, both Italian and foreign. Each sign is briefly described and glossed in Italian, Spanish, English and French. The purpose was to make Deaf culture accessible also to foreigners who were interested to learn and study LIS.

Other dictionaries of LIS were published before, but with completely different purposes. As a matter of fact, they appeared to be oriented to the needs of hearing people, such as speech therapists, educators or teachers. Examples of this tendency are *Il Dizionario dei segni* ('Dictionary of Signs') (1991) or *Il vocabolario della lingua gestuale italiana dei sordi* ('The vocabulary of the Italian gestural language of deaf') (1996). These works are alphabetically organised, following the order of the Italian alphabet. Similarly, the most recent *Dizionario tematico dei segni* ('Thematic Dictionary of Signs') (2004) shares the same hearing-oriented purposes, even though it is thematically organised. These dictionaries could be defined as bilingual, however, they are more based on Italian criteria.

Il Dizionario bilingue elementare della Lingua dei Segni ('The Bilingual Elementary Dictionary of Sign Language') (1992) represents a useful tool for academics and linguistic researchers. Signs are grouped according to their handshapes and each sign is accompanied

by a drawing, a transcription and a translation into Italian. Furthermore, each sign is followed by: examples of contexts where it could be found, the grammatical category it belongs to, a list of possible signs as synonyms and, some sociolinguistic variants of the signs.

Other dictionaries focus on specific domains, for instance: i) a specific vocabulary about the catholic signs, ii) the colourful child-oriented *Immaginario: immagini per un abecedario* ('Imaginary: Images for a Spelling Book'), and iii) the local dictionary of signs promoted by Regione Marche: *Dizionario Regionale del Linguaggio Mimico Gestuale Marchigiano* ('Regional Dictionary of Mimic-gestural Marchigiano Language').

The publication of dictionaries is a useful tool for researchers who are interested in linguistics. For instance, the presence of dictionaries allowed Paola Pietrandrea to analyse a corpus of 2.055 signs. They also support the linguistic value of sign languages with respect to spoken languages. According to the same linguistic purpose, *Parole e numeri* ('Words and Numbers') explores the relation between arbitrariness and iconicity in LIS, defending the linguistic nature of signs.

The works described so far are written and printed, however, in the last 20 years several dictionaries have started to be available in a computer readable form. Some examples are *Il Dizionario mimico gestuale essenziale* ('The Essential Mimic-Gestural Dictionary'); the *Dizionario Italiano/Lis* ('The Dictionary Italian/LIS') available online and created by the coop Alba; the multimedia dictionary *Dizionario multimediale dei termini informatici per audiolesi* ('The Multimedia Dictionary of informatics terms for people with hearing impairments') planned by ASPHI (Acronym for *Avviamento e Sviluppo di Progetti per ridurre l'Handicap mediante l'Informatica*), in Bologna. Moreover, in 2005, StarLIS, a company which develops multimedia tools for deaf and hearing people, promoted the first illustrated multimedia dictionary of LIS in 12 CD-ROM. It includes 2000 signs translated in four languages. One year later, an e-LIS Electronic Bilingual Dictionary LIS-Italian was created in Bolzano by the Eurac group.

Thanks to these open-access tools, an important Glossary for mobile devices has now been properly created for Deaf people who work with media and communication: *Sign Media Smart*. The concepts and words are designed according to topic criteria. It was financed by European funding and is available online in four different sign languages: LIS, British Sign Language (BLS), Austrian Sign Language (ÖGS), Swedish Sign Language (STS). Finally, *Spread the Sign* is one of the biggest international projects of sign language dictionaries in the country. It started to be available online between October 2008

and October 2010 and it is still growing in the amount of available videos. Today, it includes signs of 35 different sign languages and it represents one of the most detailed lexical resources online.

4.3 Corpora

A corpus represents a fundamental tool for the investigation of the grammatical features of a language. Indeed, it records the linguistic variations and uses of the language among different countries, creating a common base for different types of studies on spontaneous and semi-spontaneous data.

Although various researches have been conducted about the evolution of signs in Italy across different geographic areas (diatopic changings) and time (diachronic changings), a national corpus has never been developed before the *PRIN* project (Research Project of National Interest). The project was financed by the Ministry for Education, University and Research in November 2008. It lasted two years and was created with the partnership of three universities: University of Urbino (then moved to La Sapienza University of Rome), Ca' Foscari University of Venice and Bicocca University of Milan.

One of the main results of this project was the creation of the first national Corpus of LIS. The LIS Corpus is based on video recordings saved in high quality: mpg2. The large quantity of videos collected and the representative variations of signers recorded were very important factors, in order to obtain accurate analyses. Moreover, geographic and social factors have been taken into account to build the corpus. The data was recorded among 10 cities, covering the Northern, Southern and Central part of Italy: Turin, Milan, Brescia, Bologna, Florence, Rome, Salerno, Bari, Catanzaro, and Ragusa. For the purposes of the project, only deaf people were involved in the research and no other people linked to the Deaf society and culture were included, such as the hearing families of Deaf people or their interpreters. However, not only native signers were considered (native signers are between 5% and 10% of Deaf people in Italy), but also Deaf signers who mainly used LIS in everyday communication, despite having learnt sign language later on in life. Other social factors that were taken into account were: gender, deafness in families, type of school attended, educational level, lifestyles with respect to the city or country where they live, and social status (in hearing communities and among Deaf people).

An average of 18 participants was selected for each city and divided into three groups: 6 for the young group, 6 for the middle-aged

group, and 6 for the old group. During the recording of videos, only Deaf researchers or collaborators took part to the recording session in order to minimize the effect of the *paradox of the author participant*, namely the influence of the researchers relating to the linguistic choices of the signers. Furthermore, the session took place in locations which were familiar and commonly frequented by the Deaf informants, in order to avoid an uncomfortable atmosphere and to allow more spontaneous productions.

Four different types of data have been recorded: spontaneous conversations, individual narrations, dialogues, and picture-naming. The section of spontaneous conversation involved three Deaf people and lasted about 45 minutes. Free conversations are good resources for the collection of frequent linguistic structures, but they are less useful to investigate the occurrence of specific constructions in that they lack negative evidence. Individual narrations consisted in an individual story telling which lasted only a few minutes. The signer was sitting in front of another participant. The function of the second participant was to avoid anxiety during the performance due to the presence of the camera, and to make the narration look more spontaneous. The third section aimed at investigating the production of questions. Therefore, participants were invited to ask each other questions to gain detailed descriptions of a car accident. Although these types of productions are not completely spontaneous, (in that there is a guide-line to follow), this task is useful for the elicitation of specific linguistic structures, as in this case wh-questions. During the fourth task, participants were asked to provide the sign(s) for some pictures in order to explore linguistic variation among signers coming due to socio-linguistic variables such as age and geographic origins. When undertaking this task, signers were asked to produce all the signs they knew to refer to the same picture. The pictures belonged to different semantic fields: colours, months, family words, compounds, words without signs, classifiers, signs expressed through *dactylology* (hand alphabet), initialized signs, diachronically evolved signs and diatopically evolved signs.

The data were annotated in a separate file through a specific software called ELAN.

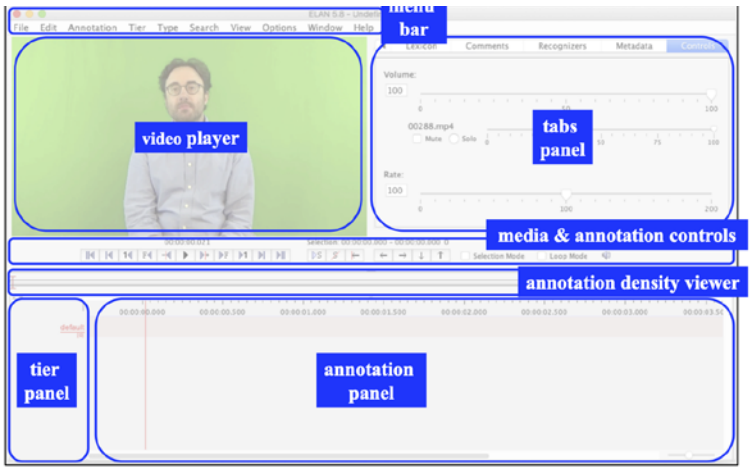

Figure 1 ELAN dialog box (recreated from Mantovan 2015, 111)

ELAN is a piece of software created at the Max Planck Institute in Nijmegen, Netherlands. It can be used with several operating systems and it can be downloaded for free. ELAN allows the simultaneous analysis of four videos in the video viewer. Linguistic information can be hierarchically organised in the tier panel and then, inserted in the annotation panel with personal classifications, depending on the specific research interests. In the upper right corner, the tabs panel allows users to visualize the annotations in various format and to modify the volume and rate of the videos. When the annotation was concluded, the data have been exported to Excel to run the statistical analysis of the corpus.

4.4 Sociolinguistic variation

Language is not a monolithic entity, since it is not homogeneously used by all speakers. Language can display variation due to sociolinguistic factors, leading to the existence of several alternative expressions to refer to the same referent. These variations can be due to language-internal or language-external factors.

Within sociolinguistic studies, there is a general consensus about the existence of five main kinds of variation: diachronic, diastratic, diaphasic, diamesic, and diatopic. Diachronic variation depends on temporal factors or arises from the comparison between old and young signers. Modifications are diastratic, if the changes are relat-

ed to different social and economic conditions. Diaphasic variation is affected by communicative settings, for example the shifting between formal or informal registers. Diamesic modifications depend on the communicative medium (for example, face-to-face communication, video recordings or online video calls). In fact, in LIS, video calls and recorded videos often imply some reduction of space or adjustments due to a two-dimensional type of transmission. Modifications depending on geographic areas determine diatopic variation. Some cases of diatopic variations in LIS can be traced back to the different Institutes attended by deaf people. In these cases, for example, in a city it is possible to find more than one variant for the same sign, because different signs came from different Institutes based in the same city. *Il Dizionario bilingue elementare della Lingua dei Segni* [SOCIO-HISTORICAL BACKGROUND 4.2] collected many of these instances of linguistic variation.

Among language-external factors in sociolinguistic variation, we find education [SOCIO-HISTORICAL BACKGROUND 2.4], age, gender, ethnicity, sexual orientation, religion, linguistic background, and socio-economic conditions.

As far as LIS is concerned, a high degree of sociolinguistic variation is observed. This is triggered by several factors: i) the lack of formal recognition by the Italian government, ii) the pressure caused by the spoken Italian language, which in some cases is considered as more prestigious, iii) the paucity of bimodal bilingual educational programs for deaf students at school, and iv) the absence of a written form of LIS. Different types of variation can co-occur in relation to various layers of linguistic structure: lexical processes, phonological processes, morphological processes, syntactic processes and discourse level processes. The videos below show the diachronic evolution of the lexical sign PHONE (a-e).

a. PHONE(1)

b. PHONE(2)

c. PHONE(3)

d. PHONE(4)

e. PHONE(5)

In this case, the evolution of the sign reflects the historical evolution of its referent, from candlestick telephones to modern smartphones.

Generally, diachronic variation concerning lexical changes seems to undergo a process of loss of iconicity, whereas an opposite tendency leads younger signers to adopt and codify more arbitrary forms.

Furthermore, younger users of LIS seem to use the most standardised and unified variety of LIS.

The variability attested on word order seems to be related to both diatopic and diachronic variation. Indeed, northern signers tend to produce SVO structures, as in (a) below. On the contrary, southern signers seem to prefer the SOV order, as in (b). Moreover, SVO seems to be the order preferred by older signers, while younger signers show a marked preference for SOV. Exceptions to these two tendencies depend on the presence of functional elements or on the reversibility of the verb, in these cases, the social variables are not significant.

a. GIANNI BUY HOUSE
'Gianni bought a house.'

b. GIANNI HOUSE BUY
'Gianni bought a house.'

Another example of diachronic variation concerns the sign ONE, used as cardinal and indefinite determiner. Middle-aged and older generations use the sign ONE both as cardinal number and indefinite determiner (probably due to the influence of Italian). According to some studies, middle-aged and older generations of signers use the sign ONE as an indefinite determiner by associating it with a tremoring motion, a slight trembling movement of the forearm and hand. In these cases, the sign ONE is not articulated in a particular point in space, rather in an unmarked location. Furthermore, the sign ONE used as an indefinite determiner could also be accompanied by a facial expression denoting uncertainty, namely pulling the corners of the mouth down [LEXICON 3.6.2]. More recent studies argue that the indefinite determiner ONE seems to be mostly accompanied by upward head tilt and a shrug of the shoulders. An example is provided below.

indef
ONE(det) WOMAN CL(G): 'come'$_1$
'A woman suddenly came to me.'

On the other hand, new generations tend to use the sign ONE only as a cardinal number. Therefore, indefiniteness is only expressed by facial expressions of uncertainty, as in the example below.

indef
WOMAN CL(G): 'come'$_1$
'A woman suddenly came to me.'

An example of diatopic modification is the different realisation of the sign ONE. Depending on the geographical provenience, signers tend to sign ONE in two different ways. In the northern regions, ONE is signed with the index finger (a), namely, with the handshape G, while in the southern regions it is articulated with the thumb extended (b), namely with the handshape S [LEXICON 3.6.2].

a. ONE(det)(G)

b. ONE(det)(S)

Information on Data and Consultants

The descriptions in this chapter are based on the references below. Please see the data and consultant information in these references. The video clips exemplifying the linguistic data have been produced by two fluent native signers, who grew up in the north of Italy. Specifically, one of them belongs to the younger generation of signers, another one belongs to the older generation. The data was recorded at the University of Milan-Bicocca.

Authorship Information

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Part II
Phonology

This part deals with the phonological and prosodic organisation of LIS. It is divided into three chapters. The first chapter, Sublexical structure [PHONOLOGY 1], provides an overview of the smallest elements of the language, namely the phonemes. The second chapter, Prosody [PHONOLOGY 2] deals with the main prosodic features of LIS from the syllable to the utterance level. The third chapter, Phonological processes [PHONOLOGY 3], illustrates the main phonological processes occurring both at the lexical and supra-lexical levels.

1 Sublexical structure

Summary 1.1 Active articulators. – 1.2 Location. – 1.3 Movement. – 1.4 Two-handed signs. – 1.5 Non-manuals.

Signs do not represent unanalysable wholes, but rather entities that have an internal structure and can be decomposed into smaller units called *phonemes*. This chapter describes the phonological organisation and the inventory of phonemes in LIS.

As any other language, LIS contains a finite set of phonemic units. These can be grouped into five classes, also known as *phonological parameters*. Four classes are related to the hands: handshape, orientation, location, and movement. Hands are not equally functioning, as one of the two acts as the dominant hand. This is the most active one while signing and it is typically the hand the signer feels most comfortable with. The fifth class is represented by non-manuals, a term that refers to facial expressions, head and body movements. Note that many signs are characterised by neutral facial expressions, hence do not realise a specific phoneme for non-manuals.

To see how the five classes of phonemes are integrated into one sign, we observe the phonological structure of the sign THIN.

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THIN

This sign is a one-handed sign because it is realised with the dominant hand only. It can be decomposed into the following phonemes: i) handshape: extended pinky; ii) orientation: wrist side directed toward the endpoint of the movement; iii) location: neutral space (the space in front of the signer's upper body); iv) movement: straight downward; and v) non-manuals: contracted cheeks and/or protruding tongue.

Phonemes do not carry any meaning per se. However, when they combine with each other to form signs, the presence of a phoneme rather than another can produce a change of meaning. When two signs differ in only one phonological parameter, share the others, and have distinct meanings, they form a minimal pair. An example of minimal pair in LIS is provided by the signs FAMILY and FULL.

a. FAMILY

b. FULL

These two signs form a minimal pair because: i) they carry distinct meaning and ii) differ in only one phoneme. As shown in the video examples, they have the same handshape (dominant hand open), orientation (palm directed toward the location), location (non-dominant hand) and non-manuals (neutral facial expression), but different movement (circular in FAMILY and straight in FULL).

Because of their capability to produce change of meaning, phonemes are considered contrastive units. In this chapter, the presentation of the inventory of LIS phonemes is accompanied by relevant minimal pairs showing their contrastive nature. When minimal pairs are not available, near-minimal pairs are shown.

Notice that phonemes in LIS represent a limited inventory which does not include all the possible articulatory forms. For instance, one phoneme may be realised in the language through different articulatory variants called *phones*. Although visually recognizable, they do not cause any meaning difference. Therefore, differently from pho-

nemes, phones are not contrastive. To illustrate, the phonological form extended pinky can have two different phonetic realisations: one with adducted thumb (a) and the other with the thumb crossed over the folded fingers (b).

a. adducted thumb

b. crossed thumb

Crucially, the difference between (a) and (b) is not meaningful: they both can be used to produce the sign THIN (see example above) without any change in meaning. In other words, the sign THIN with handshape (a) and the sign THIN with handshape (b) do not form a minimal pair. Because of their non-contrastive nature, phones are not considered two distinct phonemes, but rather two alternative phonetic realisations of the same phoneme. The use of one or the other may depend on independent factors, such as the form of neighbouring signs and the signing speed. Note that this chapter aims at abstracting away from all the possible phonetic realisations, providing an overview of the distinctive phonological forms only.

In the next sections, the five classes of phonemes are described: handshape and orientation [PHONOLOGY 1.1], location [PHONOLOGY 1.2], movement [PHONOLOGY 1.3], and non-manuals [PHONOLOGY 1.5]. The section [PHONOLOGY 1.4] illustrates the phonological patterns emerging from two-handed signs, namely those signs articulated both by the dominant and non-dominant hand.

1.1 Active articulators

Signs in LIS are expressed by two primary active articulators, namely the two hands. This section aims at providing the inventory of hand configurations of the language. Note that hand configuration includes both handshape [PHONOLOGY 1.1.1] and orientation [PHONOLOGY 1.1.2]: the former is the shape assumed by the hand, while the latter refers to the alignment of the relevant part of the hand with respect to the place of articulation.

1.1.1 Contrastive handshapes

The first phonological parameter discussed here is handshape. The internal structure of handshape is captured by two characteristics: finger selection and finger configuration.

On the one hand, finger selection [PHONOLOGY 1.1.1.1] indicates which finger(s) of the hand is/are active during the articulation of the sign. On the other hand, finger configuration [PHONOLOGY 1.1.1.2] indicates the position assumed by the selected finger(s). For instance, the handshape of the sign EXIST.NOT is characterised by: two selected fingers (thumb and index) and extended configuration.

EXIST.NOT

The distinction between finger selection and finger configuration is relevant because there are signs in LIS that have one set of selected fingers and two distinct finger configurations occurring one after the other. An example is shown below.

GO_AWAY

The sign GO_AWAY is articulated with one set of selected fingers (thumb and index) and two different finger configurations, changing from flat open to closed. Changes in handshape are extensively discussed in [PHONOLOGY 1.3.2].

1.1.1.1 Selected fingers

In the composition of the handshape, fingers do not behave uniformly. An important distinction is that between selected and unselected fingers. In the sign EXIST.NOT, which has been discussed in the previous section, the selected fingers are thumb and index, while the unselected fingers are middle, ring, and pinky.

Selected fingers differ from unselected fingers because of three properties. Selected fingers can: i) change during the articulation of the sign (e.g. opening or closing), ii) contact a location, iii) be specified for marked finger configurations [PHONOLOGY 1.1.1.2]. On the contrary, unselected fingers cannot have internal movement, cannot contact any location, and can only assume two finger configurations, namely fully open or fully closed. The three properties characterising selected fingers are exemplified by the LIS signs GO_AWAY (a), MOON (b), and OBLIGATION (c), respectively.

a. GO_AWAY

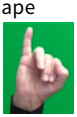
b. MOON

c. OBLIGATION

These three signs share the same finger selection because all three of them select the thumb and index as active fingers. In the sign GO_AWAY the selected fingers are subject to internal movement, from flat open to flat closed. In the sign MOON, the selected fingers contact the signer's face. In the sign OBLIGATION the selected fingers are bent, hence adopt a specific configuration.

As for finger selection, LIS allows for a limited number of combinations. The table below shows that the selected fingers range from one to five and there is a limited number of possible combinations. In most cases, the unselected fingers are flexed, but there are also a couple of cases in which they are extended (3/5, F, and 8 handshapes). For the sake of simplicity, the handshape names are in line with those typically used in LIS dictionaries.

Table 1 Finger selection

No. of selected fingers	Selected fingers	Flexed unselected fingers	Extended unselected fingers
one	thumb	S handshape	/
	index	G handshape	/
	middle	/	3/5 handshape
	pinky	I handshape 	/
two	thumb + index	L handshape	F handshape
	thumb + middle	/	8 handshape
	index + middle	V handshape	/
	thumb + pinky	Y handshape	/
	index + pinky	U handshape	/

No. of selected fingers	Selected fingers	Flexed unselected fingers	Extended unselected fingers
three	thumb + index + middle	3 handshape	/
four	index + middle + ring + pinky	4 handshape	/
five	thumb + index + middle + ring + pinky	5 handshape	/

In the remainder of this section, relevant minimal pairs are reported to show how finger selection can create minimal contrasts in LIS signs. To show clear comparisons, all handshapes included in the minimal pairs are in extended configuration, the most common one (except handshapes 3/5 and F, and 8 which, by nature, do not have extended selected fingers).

Handshapes S and 5 are contrastive in the minimal pair TOURNAMENT - PANTOMIME.

a. TOURNAMENT (handshape S)

b. PANTOMIME (handshape 5)

Handshapes V and Y are contrastive in the minimal pair TWELVE - YES.

a. TWELVE (handshape V)

b. YES (handshape Y)

Handshapes F and I are contrastive in the minimal pair CORRECT - THREAD.

a. CORRECT (handshape F)

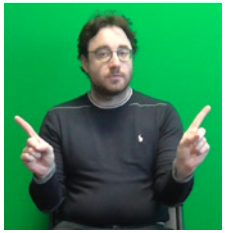
b. THREAD (handshape I)

Handshapes 3/5 and 5 are contrastive in the minimal pair NAUSEA - SATISFACTION.

a. NAUSEA (handshape 3/5)

b. SATISFACTION (handshape 5)

Handshapes G and I are contrastive in the minimal pair NOBODY - NEVER.



a. NOBODY (handshape G)

b. NEVER (handshape I)

Handshapes L and 5 are contrastive in the minimal pair LUXURIOUS - INFORMATION.

a. LUXURIOUS (handshape L)

b. INFORMATION (handshape 5)

Handshapes 3 and 4 are contrastive in the minimal pair KING - QUEEN.

a. KING (handshape 3)

b. QUEEN (handshape 4)

Handshapes U and 3 are contrastive in the minimal pair JOKE - FORMULA_ONE.

a. JOKE (handshape U)

b. FORMULA_ONE (handshape 3)

Handshape 8 is an exceptional handshape in that it is included only in some signs articulated with closing and opening hand-internal movements [PHONOLOGY 1.3.2] and in a few regional lexical variants used in Trieste.

A few signs allow for two distinct lexical variant forms articulated with different handshapes. This possibility is exemplified by the sign TRAIN, which can be realised either with 2 selected fingers (handshape V) or 3 selected fingers (handshape 3).

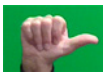
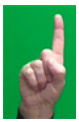
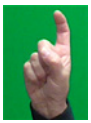
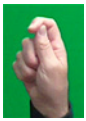
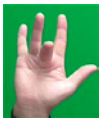
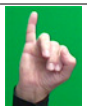
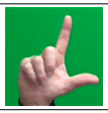
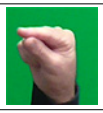
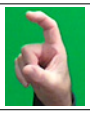
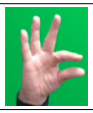
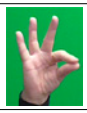
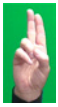
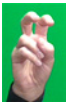
a. TRAIN (handshape V)

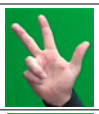
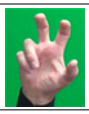
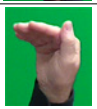
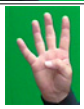
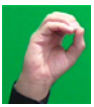
b. TRAIN (handshape 3)

1.1.1.2 Finger configuration

In the composition of handshapes, the selected fingers combine with a specific configuration. The most common configuration in LIS is extended finger(s). Other possible configurations are: i) flat open (base joint flexion with no contact between thumb and fingers), ii) flat closed (base joint flexion with contact between thumb and fingers), iii) curved open (base and non-base joint flexion with no contact between thumb and fingers), iv) curved closed (base and non-base joint flexion with contact between thumb and fingers), and v) closed (full base and non-base joint flexion). Note that certain configurations allow the fingers to be either spread [+S] or unspread [-S]. These special combinations are reported in the table as well.

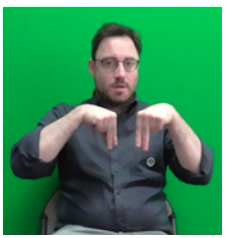
Table 2 Finger configuration

hand-shapes	extended	flat open	flat closed	curved open	curved closed	closed
S		/	/	/	/	/
G		/	/		/	
3/5	/		/	/	/	/
I		/	/	/	/	/
L					/	/
F	/					/
8	/	/	/	/		/
V	[+S] [-S] 	/	/		/	/
Y		/	/	/	/	/

U		/	/	/	/
3					/	/
4			/	/	/	/
5	[+S] [-S]			[+S] [-S]		

In the remainder of this section relevant minimal pairs are reported to show how different finger configurations (flat open, flat closed, curved open, curved closed, closed, and finger spreading) can create minimal contrasts in LIS signs. The flat open configuration is contrastive in the near-minimal pair FORMULA_ONE - CHESS (extended 3 vs. flat open 3, with a slight difference in orientation).

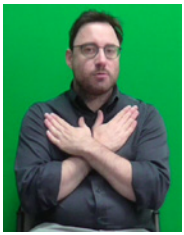
a. FORMULA_ONE (extended 3)



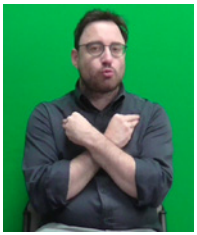
b. CHESS (flat open 3)

However, it should be noted that flat open L, flat open 3, and flat open 5 are selected by a limited number of signs, typically lexicalized signs derived from classifier constructions [PHONOLOGY 1.1.3].

The flat closed configuration is phonologically contrastive in the minimal pair MAY - UNEMPLOYED (extended 5 vs. flat closed F).



a. MAY (extended 5)

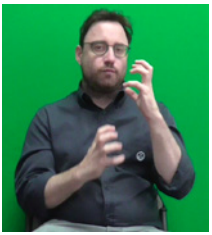


b. UNEMPLOYED (flat closed 5)

Flat closed L and flat closed 3 are handshapes used in a limited number of signs, most of which are probably derived by handling classifiers [PHONOLOGY 1.1.3].

The curved open configuration is phonologically contrastive in the minimal pair GESTURE - CONFUSION (extended 5 vs. curved open 5).

a. GESTURE (extended 5)



b. CONFUSION (curved open 5)

The curved closed configuration is phonologically contrastive in the minimal pair SUGGESTION - CIGAR (extended 5 vs. curved closed 5).

a. SUGGESTION (extended 5)

b. CIGAR (curved closed 5)

The closed configuration is phonologically contrastive in the minimal pair LET - REJECT (extended 5 vs. closed 5).

a. LET (extended 5)

b. REJECT (closed 5)

Another contrastive phonological feature is finger spreading. This can be seen in the minimal pair GLASS - MIRROR (spread 5 vs. unspread 5).

a. GLASS (spread 5)

b. MIRROR (unspread 5)

1.1.2 Orientation

Orientation defines the relation between hand(s) and location. More specifically, it indicates which part of the hand is directed toward the place of articulation. Active articulators include six sides: i) palm, ii) back, iii) ulnar, iv) radial, v) wrist, and vi) fingertip side. The six sides of the hand relevant to orientation are illustrated below.

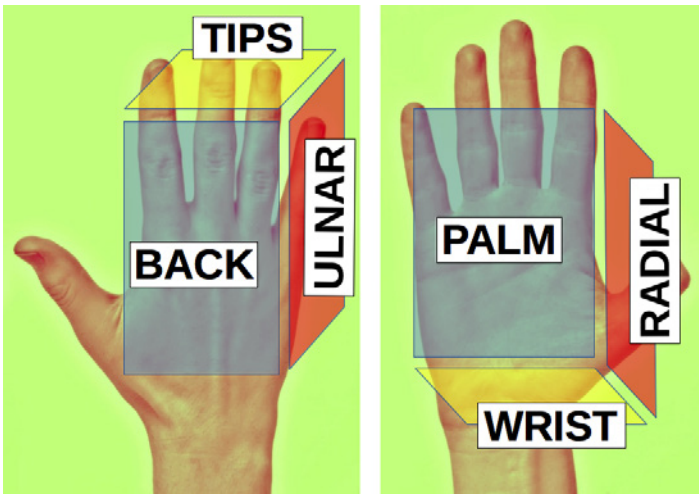


Figure 1 Orientations

Two cases need to be distinguished: signs articulated on the body and signs articulated in neutral space. In signs articulated in a location on the signer's body, orientation consists in the side of the hand facing that location. For example, the sign DEAR is produced on the cheek. The orientation of this sign is palm because the hand faces the cheek with the palm of hand side.

DEAR (palm)

The same approach is adopted for signs articulated on the non-dominant hand. For example, in the sign WOUND the orientation is ulnar because the dominant hand faces the non-dominant one with the ulnar side.

WOUND (ulnar)

In the case of signs articulated in the neutral space, orientation consists in the side of the hand pointing in the direction of the endpoint of the movement. For example, the orientation of the sign STREET is tips because the fingertip side of the articulators face the end of the movement trajectory of the sign.

STREET (tips)

Orientation can be phonologically contrastive. The following pairs of signs show minimal contrasts with respect to orientation: CORRECT - MEASURE (wrist vs. ulnar), COMPLIMENT - EVIDENCE (palm vs. back), and HOUSE - DOOR (tips vs. radial).

a. CORRECT (wrist)

b. MEASURE (ulnar)

c. COMPLIMENT (palm)

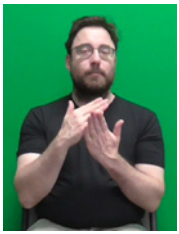
d. EVIDENCE (back)

e. HOUSE (tips)

f. DOOR (radial)

A few signs allow for two lexical variants produced with different orientation. For example, the sign PROGRAMME is a two-handed sign in which the dominant hand can touch the non-dominant one either with the radial (a) or ulnar side (b).

a. PROGRAMME (radial)



b. PROGRAMME (ulnar)

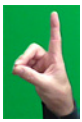
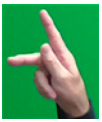
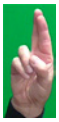
The articulation of some signs involves a hand-internal movement resulting in a change in orientation [PHONOLOGY 1.3.2].

1.1.3 The manual alphabet & number signs

A few handshapes are limited to specific domains. This is the case of handshapes appearing in: i) fingerspelled words, ii) lexicalised signs derived from fingerspelling, and iii) lexicalised signs derived from classifier constructions. Illustrative examples are provided below. No particular handshapes are exclusively used in number signs.

Some handshapes are exclusively used in borrowings from Italian, namely in fingerspelled words and signs derived from fingerspelling. In fingerspelled words, each letter of the Italian word is fingerspelled one after the other [LEXICON 2.2.2]. In signs derived from fingerspelling, the handshape typically corresponds to the first letter of the Italian translation of the sign [LEXICON 2.2.2.1]. The handshapes that are exclusively used in fingerspelled words and signs derived from fingerspelling are shown and described below.

Table 3 Handshapes limited to fingerspelling

handshape P	handshape D (new version)	handshape D (old version)	handshape E
			
handshape K	**handshape R**	**handshape T**	**handshape W**
			

Handshape D (new version) and handshape P (same handshape but with different orientation) is realised by extending the index and partially bending the other fingers so that the thumb touches the middle. Handshape D is realised with outward palm orientation and is found in the initialised sign SUNDAY (Ita. *domenica*), as shown in (a). Handshape P is realised with downward palm orientation and is found in the initialised sign POWERPOINT, as shown in (b).

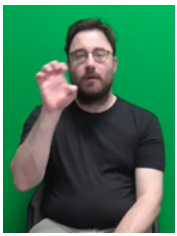
a. SUNDAY - new sign (handshape D, new version)

b. POWERPOINT (handshape P)

Handshape D (old version) is realised by bending the middle over the index. Notice that this handshape was used to represent D in the old manual alphabet and it appears in the old initialised sign SUNDAY (Ita. *domenica*).

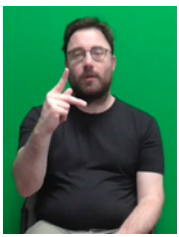
SUNDAY - old sign (handshape D, old version)

Handshape E is realised by bending and hooking all the fingers. It is found in the initialised sign EUROPE (Ita. *Europa*).



EUROPE (handshape E)

Handshape K is realised by extending the index, bending the middle at base joint, and extending the thumb so that it touches the base of the middle. It is found in the sign OK.



OK (handshape K)

Handshape R is realised by crossing the middle over the index and it is used in the initialised sign RECORD.

RECORD (handshape R)

Handshape T is realised by bending the index at base joint and extending the thumb so that it touches the base of the index. No initialised signs have been found with this handshape.

Handshape W is realised by extending index, middle, and ring. Because of its articulatory complexity, it is not frequently used by LIS signers. In borrowings from English [LEXICON 2.2], the handshape W can be replaced by handshape 4 for ease of articulation (as in the sign WORKSHOP).

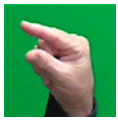
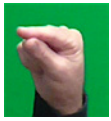
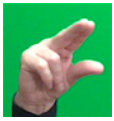
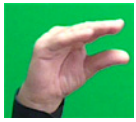
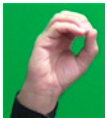
a. WORKSHOP (handshape W)

b. WORKSHOP (handshape 4)

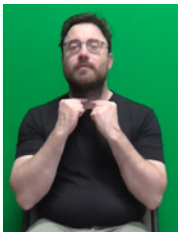
Some handshapes are exclusively, or almost exclusively, found in signs derived from classifiers. Notice that, in some cases, the distinction between core lexical elements [LEXICON 1.1] and classifiers [LEX-

ICON 1.2.1] may not be straightforward. This set of handshapes usually represent the referent in the way it looks (Size-and-Shape-Specifiers, [MORPHOLOGY 5.2]) or is handled (handle classifiers, [MORPHOLOGY 5.1.3]). The handshapes that are mostly used in signs derived from classifiers are shown and described below.

Table 4 Handshapes limited to classifiers

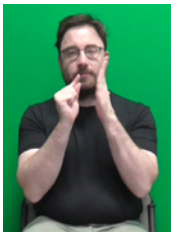
Flat open L	Flat closed L	Flat open 3	Flat closed 3
			
Flat open 5	**Curved open 5 [-S]**	**Curved closed 5**	
			

Flat open L appears in signs referring to thin rectangular objects (e.g. TICKET, FILM, and COLLAR).



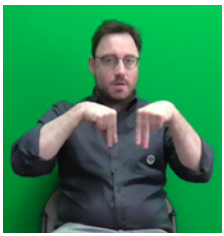
COLLAR (flat open L)

Flat closed L appears in signs referring to small sharp objects (e.g. PENCIL, MATCH, and WOODPECKER).



WOODPECKER (flat closed L)

Flat open 3 appears in signs referring to little thin objects (e.g. CHESS).



CHESS (flat open 3)

Flat closed 3 appears in signs referring to small objects handled by the hand (e.g. MAKE_UP and PEN).

PEN (flat closed 3)

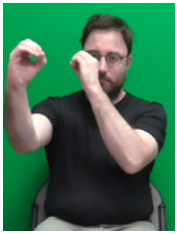
Flat open 5 appears in signs referring to voluminous rectangular objects (e.g. WATERMELON, RADIATOR, and VIDEOTAPE).

VIDEOTAPE (flat open 5)

Curved open 5 [-S]: this handshape appears in signs referring to round objects (e.g. DRINKING_GLASS, BOTTLE, and TUBE).

DRINKING_GLASS (curved open 5 [-S]

Curved closed 5 appears in signs referring to small-diameter round objects (e.g. SPYGLASS and CIGAR).



SPYGLASS (curved closed 5)

1.1.4 Other active articulators

In the production of LIS signs, hands play a crucial role. However, there are a few signs in which the most prominent articulator is not the hand, but the arm. Two examples are shown below, the signs TRANSGRESS and MOVE_TO.

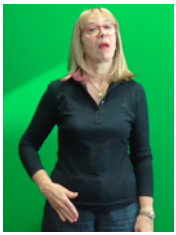
a. TRANSGRESS

b. MOVE_TO

According to our informants, in situations where signers do not want some people to see what they are signing, some signs may be produced by non-manual articulators, rather than manual ones. In this way, the linguistic message is less likely to be noticed. For example, instead of producing a manual pointing with the index finger, the signer may direct his/her eye gaze and/or a head tilt toward the object or person of interest.

1.2 Location

Location is defined as the place where the sign is articulated. For ease of production and perception, the possible location distinctions are confined in a delimited area called *signing space*: this area extends from the waist line to just above the head in the vertical plane, from elbow to elbow in the horizontal plane, and from the signer's body to the area immediately in front of the upper body in the mid-sagittal plane (for more details see [PRAGMATICS 8]). The extension of the signing space might not be perfectly homogeneous among signers: for example, it has been observed that young signers tend to use a slightly smaller signing space than older signers. In some exceptional signs, the place of articulation is outside the signing space: they are usually signs referring to particular body parts or items of clothing. For instance, the sign LEG is articulated below the waist line.



LEG

The main areas in which signs in LIS are located are: head, body, non-dominant-hand, and neutral space. In signs articulated in body locations, it is not necessary that the articulator touches the relevant body part, it is sufficient that it is close enough to it. If it is not close to body locations, the articulation of the sign is in the neutral space (the area of space in front of the upper body).

Considering the four major areas listed above, the relevant location distinctions are: i) head: whole face, upper face, ears, eyes, nose, cheeks, mouth, chin, neck; ii) body: shoulders and upper torso, chest, lower torso, arm, wrist; iii) non-dominant hand: palm, tips, radial, back; and iv) neutral space.

In some cases, location might be directly linked to the meaning of the sign. Location has an iconic motivation if it points toward the body part directly linked to the meaning of the sign (e.g. the noun NOSE signed on the nose, the adjective BLIND signed close to the eyes, the verb HEAR signed close to the ear) or if it is the area in which the referent is used (e.g. the sign CROWN in the upper part of the head).

Location has a metaphoric motivation if it is linked to the meaning of the sign through an abstract or conventional relation (e.g. rational actions like THINK and IMAGINE are signed in the upper face area, whereas emotional states like EXCITEMENT and FALL_IN_LOVE are signed in the chest area).

The location distinctions listed above are phonologically contrastive: indeed, different places of articulation can determine minimal contrasts. As evidence of their distinctive nature, the different locations are presented and exemplified through minimal pairs.

The area of the head includes the highest number of location distinctions. This is not surprising because the head is the area of highest visual acuity. During a conversation in sign language, visual attention generally focuses on the signer's face. The signs whose location is the whole face are not many. This is because signers tend to avoid hiding their facial expressions with their hands, as they play a very important role in the signing stream. The distinctive locations included in the area of the head are represented in the image below.

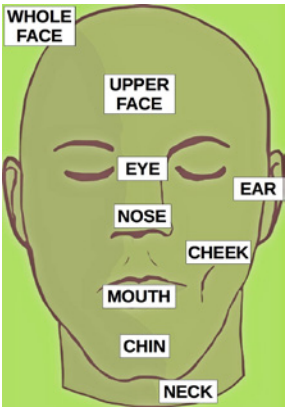
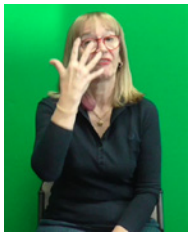
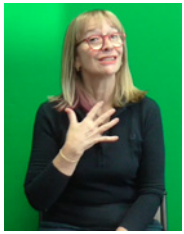


Figure 2 Locations in the area of the face

The minimal pair between a variant form of AFRICA and the sign SATISFACTION shows that whole face and chest are distinctive locations.



a. AFRICA (whole face)



b. SATISFACTION (chest)

In the case of those parts of the face having two distinct members (i.e. temple, ear, eye, and cheek), one-handed signs are produced near the ipsilateral member (the right temple, ear, eye, and cheek for a right-handed person).

The highest location in the head area involves the upper part of the head, the forehead, and the temples. The central part of the head can be the location of one-handed signs only, whereas in the lateral part of the forehead and the temples both one-handed and two-handed signs can be produced. Lots of signs in the upper face refer to objects worn on the head (e.g. HAT, CROWN), or to cognitive activities (e.g. THINK, REMEMBER). The contrastive nature of this location is shown by the minimal pair MEMORY - HUMAN (upper face vs. cheek).

a. MEMORY (upper face)

b. HUMAN (cheek)

Signs realised in the ear area are usually one-handed signs. Their meaning is typically connected to the ear in some way (e.g. HEARING, LISTEN, EARRING). This location is distinct from the upper head, as shown in the minimal pair HEAR - KNOW (ear vs. upper face).

a. HEAR (ear)

b. KNOW (upper face)

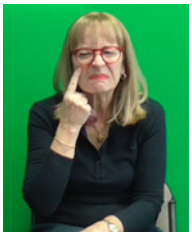
The area of the eye is typically the location of signs whose meaning is linked to the eye or the ability to see (e.g. LOOK, BLIND, GLASSES). This location is distinctive in the minimal pair including a variant form of BLIND and the sign CRAZY (eye vs. upper face).

a. BLIND (eye)

b. CRAZY (upper face)

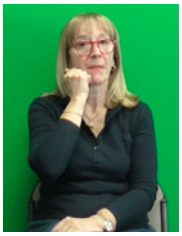
Signs produced close to the nose are (almost) exclusively one-handed signs. They usually have a semantic connection to the nose and its function (e.g. SNIFFLE, FRAGRANCE). Some signs make metaphorical reference to the nose: for example, CURIOUS contains the same metaphor of the Italian idiom *ficcare il naso* 'to stick one's nose into something'. The distinctive nature of this location can be seen in the minimal pair SMELL - LET_S_SEE (nose vs. eye).

a. SMELL (nose)

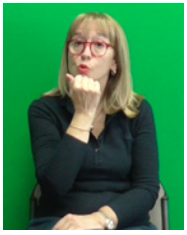


b. LET_S_SEE (eye)

The area of the cheek is typically selected by signs whose meaning is connected to the cheek in some way. For example, the sign SLEEP makes reference to the fact that in a common sleeping position the cheek is pressed against the pillow. Other signs articulated in this location refer to people (e.g. WOMAN, MOTHER, MAN). The fact that the cheek can be phonologically distinctive is shown in the minimal pairs HUMAN - MEMORY (cheek vs. upper face, above) and MOTHER - SORRY (cheek vs. chin).

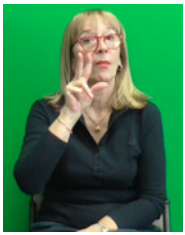


a. MOTHER (cheek)



b. SORRY (chin)

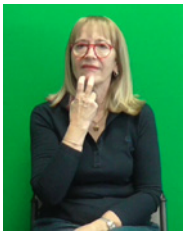
The signs articulated on the mouth are mostly one-handed signs. They typically refer to the mouth and actions performed by it (e.g. SPEAK, MUTE, DRINK). The contrastive nature of this location is shown by the minimal pair SPEAK - BE_FAMILIAR (mouth vs. upper face).



a. SPEAK (mouth)

b. BE_FAMILIAR (upper face)

The chin is a location commonly selected by one-handed signs, too. The fact that this location can be phonologically distinctive is shown in the minimal pairs SORRY - MOTHER (chin vs. cheek, above) and VERB - LAWYER (chin vs. nose).



a. VERB (chin)

b. LAWYER (nose)

The last distinctive location in the head is the area of the neck. It is selected by signs that usually have a direct connection to the neck (e.g. VOICE, BOW_TIE) or a metaphorical connection to it (e.g. FORCED meaning *preso per il collo*, 'taken by the throat'). The contrastive nature of this location is shown by the minimal pair THIRST - HEADACHE (neck vs. upper face).

a. THIRST (neck)

b. HEADACHE (upper face)

The distinctive body locations in LIS are: shoulders and upper torso, chest, lower torso, arm, and wrist. These locations are illustrated in the image below.

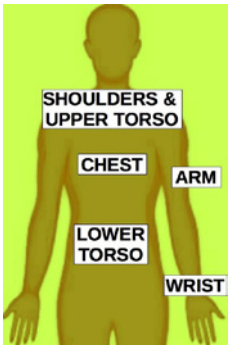


Figure 3 Locations in the area of the body

The shoulders and upper torso represent the location of signs referring to objects carried on the shoulders (e.g. BAG, COAT), signs referring to time (e.g. YESTERDAY, BEFORE), and other signs. One-handed signs produced in this location may select the ipsilateral shoulder (e.g. SOLDIER) or the contralateral one (e.g. FAULT). The contrastive nature of this location is shown by the minimal pair SOLDIER - POSS_1 (upper torso vs. chest, with a slight difference in absolute orientation).

a. SOLDIER (upper torso)

b. POSS_1 (chest)

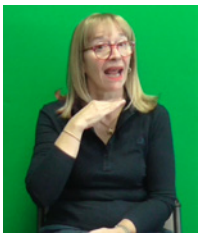
The area of the chest is intended as the central part of the torso. This location is selected by many signs referring to feelings and emotions (e.g. LOVE, SUFFER, JEALOUSY). The chest area can be contrastive in minimal pairs, as shown in POSS_1 - SOLDIER (chest vs. upper torso, above) and in BRA - UNDERWEAR (chest vs. lower torso).

a. BRA (chest)

b. UNDERWEAR (lower torso)

The signs produced in the lower part of the torso are not many because this is probably the area of lowest visual acuity. This location is contrastive in some minimal pairs, as shown in UNDERWEAR - BRA (lower torso vs. chest, above) and in HUNGER - DOG (lower torso vs. neck).

a. HUNGER (lower torso)



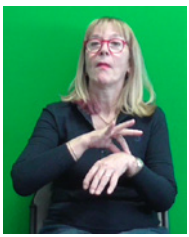
b. DOG (neck)

The area of the non-dominant arm is a large location including the upper arm, the elbow, and the forearm. All the signs selecting the area of the non-dominant arm are one-handed signs. Many of them make reference to special roles or qualifications (e.g. TEAM_CAPTAIN, ASSISTANT, UNION_OFFICIAL). The contrastive nature of the arm is shown by the minimal pair RUDE - PROPRIETY (arm vs. chest).

a. RUDE (arm)

b. PROPRIETY (chest)

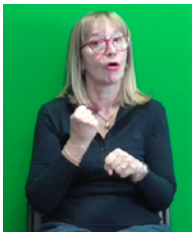
The non-dominant wrist is selected mostly by signs that are directly or indirectly connected to the wrist. An instance of direct connection is the sign WATCH, whereas an instance of indirect connection is PATIENT (this sign refers to the fact that doctors usually check on patients' wrist pulse). The contrastive nature of the wrist is shown by the minimal pair SICK - HEADACHE (wrist vs. upper face).



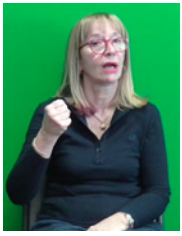
a. SICK (wrist)

b. HEADACHE (upper face)

In some two-handed signs, the non-dominant hand is not an active articulator. Rather, it is a passive articulator and functions as a place of articulation. To illustrate, in the sign WORK the dominant hand moves in a circular way on the vertical plane and when it moves downwards it touches the location of the sign, namely the non-dominant hand. If this movement occurs in the neutral space rather than on the non-dominant hand, the sign produced is SHEPHERD. The minimal pair WORK - SHEPHERD is shown below.



a. WORK (non-dominant hand)



b. SHEPHERD (neutral space)

The sides of the non-dominant hand that can be relevant to the articulation of this type of signs are: palm, back, radial, and tips.

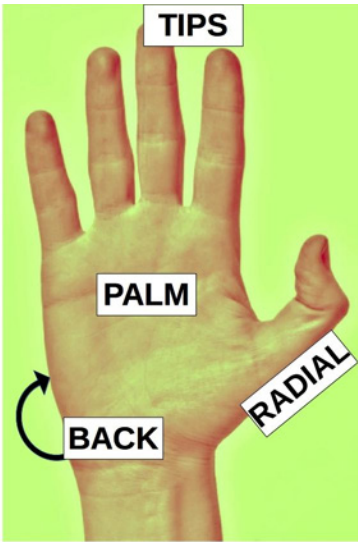
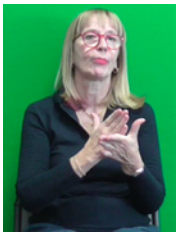


Figure 4 Locations in the area of the non-dominant hand

Below we can see some signs showing the contrastive nature of these location distinctions: the pair SOAP - CHEESE (palm vs. back) and the triplet STOP - HALF - LIMIT (palm vs. radial vs. ulnar).

a. SOAP (palm)

b. CHEESE (back)

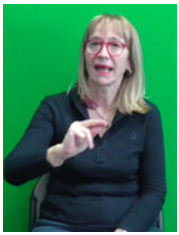


c. STOP (palm)

d. HALF (radial)

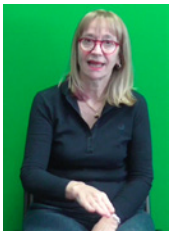
e. LIMIT (ulnar)

The fourth major area, the neutral space, is the largest area and constitutes the place of articulation of the majority of the LIS signs. Signs in neutral space can be articulated approximately in the middle (PEN), high (GOD), low (FOOT), or in a lateral position (TOILET).

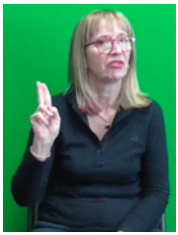


a. PEN (middle)

b. GOD (high)

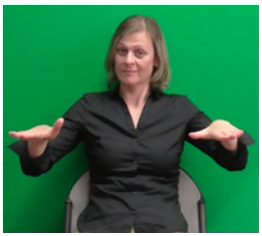


c. FOOT (low)



d. TOILET (lateral)

It is not entirely clear whether the neutral space is subdivided into contrastive subareas. According to some informants, differences in height are distinctive. For example, TABLE and FLOOR are very similar signs articulated in the neutral space with the only difference that the former is at chest level and the latter is at waist level.

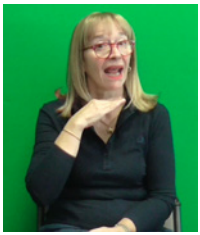


a. TABLE (neutral space, middle)

b. FLOOR (neutral space, low)

A few signs allow two lexical variants produced in two different places of articulation. For example, the sign DOG is a one-handed sign in which the dominant hand can touch either the chin or the neck with a repeated movement.

a. DOG (chin)



b. DOG (neck)

In some signs, the active articulator(s) move from a location to another [PHONOLOGY 1.3.1].

1.3 Movement

The dynamic nature of signs is captured by the movement parameter. This can be described in terms of path (or primary) movements and secondary movements.

Path movements consist in changes in location. To illustrate, the sign STREET involves a path movement because it requires that the two hands move in the neutral space from a starting location close to the signer's body to a location farther away from it (in front of it).

STREET (path movement)

Secondary movements consist in changes in handshape and/or orientation. Handshape change is here exemplified by the sign IGNORANT, in which the handshape changes from extended 5 [-S] to flat closed 5.

IGNORANT (handshape change)

Orientation change is here exemplified by the sign BREAK, in which the articulatory orientation changes from prone to neutral.

BREAK (orientation change)

The movement component may assume different timing properties. Specifically, signs can include non-repeated or repeated movements. These two possibilities can be phonologically contrastive and are found both with primary and secondary movements.

As for path movement (location change), the phonological contrast between a non-repeated and repeated pattern can be seen in the minimal pair LIFE - LIVE (single vs. repeated).

a. LIFE (non-repeated movement)

b. LIVE (repeated movement)

A minimal pair showing the contrast between single and repeated handshape change is composed by the sign GOOD and a variant form of BE_POSSIBLE (single vs. repeated).

a. GOOD (non-repeated movement)

b. BE_POSSIBLE (repeated movement)

The difference between single and repeated movement can be contrastive in orientation changes, too. This is exemplified by the mini-

mal pair FUNCTION - MOTOR (single vs. repeated).

a. FUNCTION (non-repeated movement)

b. MOTOR (repeated movement)

Combinations of different movement types are allowed. The possible combinations are the following: i) location change + handshape change; ii) location change + orientation change; iii) handshape change + orientation change; and iv) location change + handshape change + orientation change.

One example for each combination is provided below. The possibility to combine location and handshape change is exemplified by the citation form of the sign COPY, which requires both path movement (from a location farther away from the signer's body to a location close to it) and secondary movement (handshape change from extended 5 [-S] to flat closed 5).

COPY (location change + handshape change)

Location change can be combined with orientation change as well. This can be observed in the citation form of the sign FIRST_TIME, which requires both path movement (from the middle of the neutral space to a higher location) and secondary movement (orientation change determining wrist rotation, from prone to supine).

FIRST_TIME (location change + orientation change)

The two different types of secondary movements can be combined in one single sign. This possibility is shown in the sign CASE, in which the handshape changes from F to 5 (opening movement) and the orientation changes from prone to supine (wrist rotation).

CASE (handshape change + orientation change)

The last option combines all three kinds of movements (location, handshape, and orientation change). It is found in only a few signs and it is here exemplified by the sign HURL. As shown below, the movement of this sign undergoes three different changes: from near the signer's body to a high contralateral location far from it (location change), from handshape 5 to G (handshape change), and from prone to supine (orientation change).

HURL (location change + handshape change + orientation change)

1.3.1 Path movement

Path movements are realised by moving the whole articulator(s) from one location to another on the body or in space. In this section, path movements are described in terms of two features: shape (how the hands move) and direction (where the hands move).

As for shape, there are three main possibilities: straight, arc, and circle. We exemplify these three shape types by the minimal triplet MEASURE, GENTLE, and PREPARE.

a. MEASURE (straight)

b. GENTLE (arc)

c. PREPARE (circle)

These three signs share the same handshape (F), location (neutral space), and orientation (ulnar). They differ only in movement shape: MEASURE has a straight movement (the hands move uniformly contralaterally without bending), GENTLE has an arc movement (the hands move contralaterally with a curving trajectory without completing the circle), and PREPARE has a circle movement (the hands move all the way around, possibly more than once).

Another possible shape is represented by waving movements, in which the hands move with an undulating or zig-zagging motion. An example of this is shown in the sign LIGHTNING.

LIGHTNING (zigzag)

Path movements in LIS can occur in six different directions: upward, downward, inward, outward, ipsilateralward, and contralateralward. These six directions are exemplified by the following signs: ADULT (upward), THIN (downward), GRAVE (inward), STREET (outward), KING (ipsilateralward), and AUNT (contralateralward).

a. ADULT (upward)

b. THIN (downward)

c. GRAVE (inward)

d. STREET (outward)

e. KING (ipsilateralward)

f. AUNT (contralateralward)

Diagonal movements can be described as combinations of two primary directions (e.g. ipsilateralward + downward).

Arc and circle movements can receive a further specification: clockwise and counterclockwise. It should be noted that this kind of direction is not intended in absolute terms. It can apply to all spatial planes and it is specified considering the signer's dominant hand: indeed, a clockwise motion for a right-handed person corresponds to a counterclockwise motion for a left-handed person. To illustrate the difference between clockwise and counterclockwise direction, we consider the case of right-handed signers and present two pairs of similar signs, one showing arc motion and the other circle motion. As for arc motion, the clockwise direction is found in the sign CROWN, while the counterclockwise one is found in the sign WORLD.

a. CROWN (clockwise)

b. WORLD (counterclockwise)

Turning to circle motion, the clockwise direction is found in the sign STROLL, while the counterclockwise one is found in the sign PREPARE.

a. STROLL (clockwise)

b. PREPARE (counterclockwise)

Both arc and circle motions can occur in all three dimensional planes. For example, the arc motion in the sign EVERYBODY is articulated on the horizontal plane, in the sign RAINBOW on the vertical plane, and in the sign SON on the midsagittal plane.

a. EVERYBODY (horizontal)

b. RAINBOW (vertical)

c. SON (midsagittal)

To illustrate the three possibilities with circle motion, we show the following examples: the sign SEA is articulated on the horizontal plane, the sign TOURISM on the vertical plane, and the sign KIN on the midsagittal plane.

a. SEA (horizontal)

b. TOURISM (vertical)

c. KIN (midsagittal)

A few signs allow for two distinct lexical variants articulated with different path movements. This possibility is exemplified by the sign SEEM, whose circle movement can be realised either clockwise or counterclockwise, as shown below.

a. SEEM (clockwise)

b. SEEM (counterclockwise)

Crucially, in cases such this, the use of one or the other motion direction does not determine a change in meaning.

1.3.2 Secondary movement

Secondary movements are local or hand-internal movements. As said before, they can result in handshape and/or orientation changes.

The possible handshape changes can be categorized as follows: opening, closing, flattening, bending, wiggling, rubbing, and spreading movements.

In opening movements, the selected fingers change from a closed to an extended configuration. Various handshapes can be involved, for example F (MEDICINE), 8 (GOLD), and 3 (FLOWER).

a. MEDICINE (handshape F)

b. GOLD (handshape 8)

c. FLOWER (handshape 3)

In closing movements, the selected fingers change from an extended to closed configuration. Various handshapes can be involved, for example L (BIRD), 3 (SPEAK), and 5 (UNDERSTAND).

a. BIRD (handshape L)

b. SPEAK (handshape 3)

c. UNDERSTAND (handshape 5)

The selected fingers usually move together, but they can also move separately, one after the other. The former case is exemplified by the sign GRASP, in which the fingers close together. The latter case is exemplified by the sign STEAL, in which the fingers close one after the other. This can occur with opening movement, too, as shown in the sign NUMBER.

a. GRASP (fingers close together)

b. STEAL (fingers close one after the other)

c. NUMBER (fingers open one after the other)

In some signs, the selected fingers flex at base joints. This hand-internal movement is called flattening and is found, for example, in the sign RABBIT.

RABBIT

When the selected fingers flex at the base joint and extend repeatedly in an alternating way, a wiggling movement is produced. To illustrate, this type of secondary movement is found in the sign COMPUTER.

COMPUTER

Another possible handshape change is bending. This secondary movement occurs when the selected fingers flex at non-base joints. For example, it is found in the sign PHOTO.

PHOTO

Rubbing movements characterise signs in which the thumb applies friction to the other selected finger(s). A sign produced with rubbing movement is MONEY.

MONEY

Spreading movements occur when the handshape changes from a spread to an unspread configuration. This type of secondary movement can be observed in the sign SCISSORS, in which index and middle fingers spread and unspread repeatedly.

SCISSORS

Different types of handshape change can be phonologically contrastive. For example, the signs SWITCH_ON and SWITCH_OFF are very similar signs and differ only in internal movement (opening in SWITCH_ON and closing in SWITCH_OFF).

a. SWITCH_ON (opening)

b. SWITCH_OFF (closing)

As shown by the videos above, the sign SWITCH_ON involves an opening movement from closed to open 5, whereas the sign SWITCH_OFF involves a closing movement from open to closed 5.

The presence or absence of handshape change can create phonological contrasts. This can be seen in the minimal pair AUNT - FREE_OF_CHARGE: the only difference between these two signs is that AUNT does not require any hand-internal movement, whereas FREE_OF_CHARGE requires an opening movement from closed 5 to handshape G.

a. AUNT (without handshape change)

b. FREE_OF_CHARGE (with handshape change)

The possible orientation changes can occur in three different ways: i) wrist rotation, ii) pivoting, and iii) nodding.

In wrist rotation, there is a change in palm orientation. This change can be from prone to supine (e.g. BETRAY), from supine to prone (e.g. FORBIDDEN), or repeated from one position to the other (e.g. MUSIC).

a. BETRAY (from prone to supine)

b. FORBIDDEN (from supine to prone)

c. MUSIC (supine/prone repeatedly)

In pivoting, there is a change in finger orientation. This change can be from radial to ulnar (e.g. IMPOSSIBLE_PA_PA), from ulnar to radial (e.g. STUPID), or repeated from one position to the other (e.g. MOTOR).

a. IMPOSSIBLE_PA_PA (from radial to ulnar)

b. STUPID (from ulnar to radial)

c. MOTOR (radial/ulnar repeatedly)

In nodding, there is a change in both palm and finger orientation. This change can be from palm to back (e.g. OPEN), from back to palm (e.g. CLOSED), or repeated from one position to the other (e.g. SPRING).

a. OPEN (from palm to back)

b. CLOSED (from back to palm)

c. SPRING (palm/back repeatedly)

Different types of orientation change can be phonologically contrastive. For instance, the signs HAMMER and KEY are very similar with

the difference that in the former the closed G handshape repeatedly changes from back to palm (nodding), whereas in the latter the closed G handshape changes from prone to supine (wrist rotation).

a. HAMMER (nodding)

b. KEY (wrist rotation)

The presence or absence of handshape change can create phonological contrasts. For example, the two grammatical signs IX(dem) [LEXICON 3.6.1] and PE [LEXICON 3.6.1] and [SYNTAX 3.4.2.1] are almost identical because they share the same handshape (G), relative orientation (tips), location (neutral space), and movement (toward a deictic or anaphoric locus in the neutral space). What distinguishes these two signs is that in IX(dem) no orientation change occurs, whereas in PE the G handshape changes from radial to ulnar (pivoting).

a. IX(dem) (without orientation change)

b. PE (with orientation change)

1.4 Two-handed signs

In LIS, some signs are articulated with one hand only (the dominant hand), while others require the use of both hands. The use of one or two hands can be phonologically distinctive and this is demonstrated by the existence of minimal pairs showing the opposition one-handed vs. two-handed. Two examples are the pairs PLEASURE - CLOTHES and RENT - TEA.

a. PLEASURE (one hand)

b. CLOTHES (two hands)

c. RENT (one hand)

d. TEA (two hands)

As shown above, CLOTHES and TEA are articulated with both hands, while PLEASURE and RENT are made with the dominant hand only.

Despite being both two-handed signs, CLOTHES and TEA differ one from the other in the following respect: the former is symmetrical, while the latter is asymmetrical. In symmetrical two-handed signs, both hands are active articulators and move in an independent location specification. In the case of CLOTHES, both the dominant and non-dominant hand move downward on the chest. Orientation and

handshape are identical in the two hands. In asymmetrical two-handed signs, only the dominant hand moves, whereas the non-dominant hand is a passive articulator functioning as place of articulation. In the case of TEA, the dominant hand moves downward close to the non-dominant hand, which does not move. Moreover, the two hands also differ in terms of orientation and handshape.

Notice that, in some cases, two-handed signs may display articulatory reduction and be produced with the dominant hand only. This particular phenomenon is called weak hand drop [PHONOLOGY 3.1.4].

1.4.1 Symmetrical signs

As previously mentioned, symmetrical signs require that both hands are active articulators and move. The allowed patterns are: simultaneous movement and alternating movement.

In simultaneous movements, the hands move in tandem toward the same direction. For example, the sign DANGEROUS shows a case of simultaneous movement because the hands move in-phase. In alternating movements, the hands move together in an out-of-phase fashion and always point toward different directions. An example of this can be observed in the sign VIOLENT.

a. DANGEROUS (simultaneous)

b. VIOLENT (alternating)

In symmetrical two-handed signs, the non-dominant hand must assume the same handshape of the dominant hand. Indeed, in the signs above both hands share the same handshape (unspread 5). An exception to this restriction is represented by the sign WEEK, in which the hands show the same movement but have different handshapes (5 for the non-dominant and L for the dominant hand).

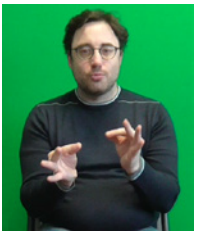
WEEK

1.4.2 Asymmetrical signs

In asymmetrical two-handed signs, the two hands have different functions: the dominant one acts as active articulator, whereas the non-dominant one functions as place of articulation.

In order to capture the correct articulation of this class of signs, it is important to identify the specific location of the non-dominant hand in which the sign is articulated and the handshape assumed by it. As pre-

viously discussed [PHONOLOGY 1.2], the possible location specifications of the non-dominant hand are back, palm, radial, and tips. The existence of minimal pairs differing in these specifications show that they are phonologically distinctive. The handshape of the non-dominant hand can either be identical to the handshape of the dominant hand or different from it. For example, in the sign MINUTE both hands assume the F handshape, whereas in the sign POTATO the dominant and the non-dominant hand assume different handshapes, F and unspread 5, respectively.

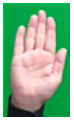
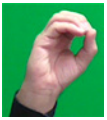
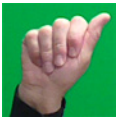
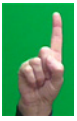


a. MINUTE (same handshape)

b. POTATO (different handshape)

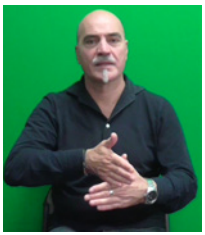
It should be noted that when the two hands share the same handshape, a large set of possible handshapes is available. On the contrary, when the two hands assume different shapes, the handshape of the non-dominant hand is restricted to a limited set of options, which are reported below.

Table 5 Non-dominant handshapes allowed in asymmetrical two-handed signs

5	unspread 5	curved open 5	curved closed 5	closed 5	G
					

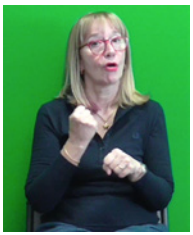
In most asymmetrical two-handed signs, the non-dominant hand assumes either one of these two handshapes: unspread 5 or closed 5. For example, the non-dominant hand assumes the unspread 5 handshape in the signs CHEESE (a) and HALF (b) and the closed 5 handshape in the signs FAMILY (c) and WORK (d).

a. CHEESE (unspread 5)



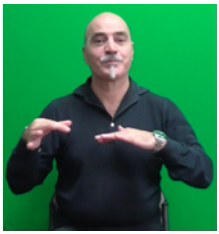
b. HALF (unspread 5)

c. FAMILY (closed 5)

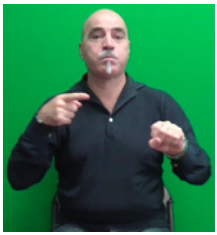


d. WORK (closed 5)

Although less common, other handshapes are also attested: spread 5 (e.g. MARRIAGE), curved closed 5 (e.g. HOLE), curved open 5 (e.g. TEA), and G (e.g. ANTENNA).



a. MARRIAGE (spread 5)



b. HOLE (curved closed 5)

c. TEA (curved open 5)

d. ANTENNA (G)

1.5 Non-manuals

The phonological description of lexical signs in LIS does not focus only on hand movements articulated with a certain handshape and orientation in a certain location. Another phonological parameter that needs to be considered is represented by non-manuals. This term includes facial expressions, head and body movements.

Focusing on mouth patterns, LIS signs make use of mouth gestures and mouthings. Mouth gestures are intended as mouth movements that do not have any connection with Italian. Mouthings are mouth movements producing the visual representation of Italian words.

Mouth gestures and mouthings can be phonologically distinctive, as proved by the existence of minimal pairs. For example, FRESH and NOT_YET are both two-handed signs articulated with F handshape and a repeated lateral movement in the neutral space. They differ in non-manuals only: FRESH is accompanied by mouthing (the mouth voicelessly reproduces the equivalent spoken word, i.e. *fresco*), whereas NOT_YET is accompanied by mouth gesture [sss] (the mouth releases air as in sibilant [s] and lateral head shakes.

a. FRESH (mouthing) 'fresco'

b. NOT_YET (mouth gesture) [sss]

Mouth gestures and mouthings are described in detail in the next sections.

1.5.1 Mouth gestures

Mouth gestures are actions of the mouth that are not derived from spoken Italian. Although LIS signers use less mouth gestures than mouthings, the former appear more uniform than the latter.

The category of mouth patterns is not strictly associated with the mouth. In a broader sense, it involves different components: jaw aperture, position of the cheeks, tongue and lips, and use of air. To give an idea of the variety of mouth gestures attested in LIS, some examples are listed and shown below. Note that position of the lips and use of air often co-occur. Mouth gestures can involve: i) jaw aperture (e.g. lowered jaw and open mouth 'om' in the sign ASTONISHMENT), ii) position of the cheeks (e.g. puffed cheeks 'pc' in the sign FAT), iii) position of the tongue (e.g. tongue protrusion 'tp' and/or contract-

ed cheeks in the sign THIN), iv) position of the lips (e.g. compression of the lower lip performed by the upper teeth 'tl' in the sign BE_SORRY), and v) use of air (e.g. occlusion followed by a sudden release of air in the sign TRANSGRESS).

a. lowered jaw+om ASTONISHMENT

b. pc FAT

c. tp THIN

d. tl BE_SORRY

e. blow TRANSGRESS

The relationship between mouth gesture and manual sign can reflect different degrees of iconicity. It can be transparent, translucent, or opaque. In a transparent relationship, the mouth gesture iconically reflects the meaning of the sign. For example, in the articulation of the sign ICE_CREAM_EAT, the tip of the tongue is protruded (tp) as in the action of licking. A translucent relationship is clear to non-signers once it is explicitly explained. For example, in the articulation of the sign LIKE.NOT, the tip of the tongue is visibly protruded (tp), as similarly happens when people belonging to the Italian culture don't like something and stick out their tongue. In an opaque relationship, the link between mouth gesture and manual sign is purely conventional. For example, the sign IMPOSSIBLE_PA_PA and the associated mouth gesture [pa pa] are not semantically related.

a. tp ICE_CREAM_EAT

b. tp LIKE.NOT

c. [pa pa] IMPOSSIBLE_PA_PA

In some cases, the articulatory features of the mouth gesture are associated to the meaning through a metaphorical relation. For instance, protrusion of the tongue frequently suggests negative connotation, occlusives suggest immediacy, and lengthening of the mouth gesture indicates temporal continuity.

Mouth gestures not only contribute to the formation of signs, but they can also be used to convey specific adverbial meanings [LEXICON 3.5].

1.5.2 Mouthings

LIS signs are frequently accompanied by mouthings, the voiceless reproduction of the corresponding Italian words. This fact is probably due to the strong oralist tradition in Italian deaf education. There is an ongoing debate about the status of mouthings. Indeed, it is not yet clear whether they constitute a phonological building block of signs or a case of code blending (i.e. simultaneous use of two languages). Assessing which of these two hypotheses is correct falls out of the scope of this grammar. The section dealing with the non-native lexicon [LEXICON 2.2.3] further discusses the role of mouthings in the lexicon.

It has been observed that, in spontaneous production, LIS signers tend to produce more mouthings than mouth gestures. The use of mouthings along with signing does not appear systematic since it varies from signer to signer and is influenced by various social variables, such as the extra-linguistic context, the interlocutor(s), and the signer's educational background.

As for the linguistic functions, mouthing usually co-occurs more with nouns and adjectives and less frequently with verbs. It should be noted that functional elements of Italian such as plural morphemes and tense morphemes are not reproduced in the mouthings co-occurring with LIS signs. As default, those associated with nouns reproduce the masculine singular form and those associated with verbs reproduce the infinitive or past participle form.

The semantic relationship between mouthing and sign can be of different types. First, the mouthing and the manual sign can be semantically equivalent. For example, the sign MAN (Ita. *uomo*) is accompanied by the mouthing 'uomo'.

'uomo'
MAN

Second, the mouthing can complete the meaning conveyed by the manual sign so that the two components combine with each other and create a complex syntagmatic unit. For example, the sign GO accompanied by the mouthing *casa* 'house' means to go home.

'casa'
GO
'(To) go home'

Third, the mouthing can add a more specific meaning to the manual sign (hyponymy). For example, the mouthing *abete* 'fir' can be combined with the sign TREE to specify which kind of tree is intended.

'abete'
TREE
'fir'

Fourth, the mouthing can disambiguate manually homonymous forms. For example, there is a sign in LIS articulated with both hands with V handshape that can be used to refer to both vegetables and pasta. In this case, the mouthing specifies which of the two meanings is intended (*verdura* 'vegetable' or *pasta* 'pasta').

'verdura'
a. VEGETABLE/PASTA
'vegetable'

'pasta'
b. VEGETABLE/PASTA
'pasta'

Fifth, the mouthing can explicitly define what a classifier sign refers to. For example, the classifier CL(flat open L): 'round_small_object' can be accompanied by the mouthing *proiettile* 'bullet' to specify which referent is intended.

'proiettile'
CL(flat open L): 'round_small_object'
'bullet'

Sixth, the mouthing can explicitly indicate what an initialised sign (a sign whose handshape represents the first letter of the corresponding Italian word) refers to. For example, to refer to the Italian politician Bersani, signers can use the handshape corresponding to letter B and the full mouthing reproducing the name.

'bersani'
BERSANI

This is a case of single-letter sign [LEXICON 2.2.2].

In spontaneous signing, if mouthing co-occurs with a manual sign, these two components tend to be isochronous, i.e. have the same duration. For this reason, sometimes mouthing undergoes alterations

such as lengthening and truncation to match the timing of the manual sign. For example, the mouthing associated with the sign WASH (*lavo*) may be realised with the lengthening of the first vowel.

1.5.3 Other non-manuals

To be developed.

Information on Data and Consultants

The descriptions in this chapter are based on the references below. The linguistic data illustrated as images and video clips have been checked through acceptability judgments and have been reproduced by Deaf native-signing consultants.

Authorship Information

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2 Prosody

Summary 2.1 The lexical level. – 2.2 Above the lexical level. – 2.3 Intonation. – 2.4 Interaction.

The domain of prosody includes linguistic phenomena such as intonation, rhythm, stress, and prominence. It thus concerns the suprasegmental features that co-occur with phonemic segments [PHONOLOGY 1].

In human languages, prosodic markers can be used to encode: i) grammatical functions such as the force of the utterance (e.g., declarative, interrogative, imperative, [SYNTAX 1]), ii) broader communicative functions (e.g., irony, sarcasm, emphasis), iii) the emotional state of the signer (e.g., surprise, anger, satisfaction). Given this variety of functions, prosody constitutes a complex interface. To illustrate these functions, below we provide a short utterance accompanied with different prosodic contours. Being the lexical unit (almost) the same in the four examples, we can isolate the contribution of different prosodic markers. These can be realised manually through sign modification or non-manually through facial expressions, head and body movements.

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a. TABLE CLEAN
'The table is clean.' (declarative)

ht-f
re
b. TABLE CLEAN
'Is the table clean?' (polar interrogative)

we
md
c. TABLE PE CLEAN$_{[\text{prolonged}]}$
'This table is so clean!' (ironic)

we
md ht-f
d. TABLE CLEAN
'The table is clean!' (surprised)

Examples (a) and (b) show that in LIS a declarative sentence is distinguished from a polar interrogative by means of non-manual markers. Specifically, neutral eyebrows and neutral head position mark the declarative, whereas raised eyebrows (re) and forward head/body lean (ht-f) mark the polar interrogative. In such instances, non-manual markers function as prosodic markers in defining the illocutionary force of a sentence. When irony is applied to a sentence, we observe a clash between the literal evaluation expressed by the signs (positive or negative) and the signer's attitude (compliment or criticism). In the ironic sentence shown above (c), irony is signalled by specific prosodic markers: the prolonged articulation of the evaluative manual sign (CLEAN) and non-manual markers such as wide-open eyes (we) and mouth-corners down (md). The fact that the line of the lips turns down indicates that the signer wants to convey criticism. This is clearly in contrast with the positive evaluation expressed by the sign CLEAN. This clash between mouth position and manual sign triggers the ironic interpretation.

Sentence (d) demonstrates that prosody can convey emotional states, too. In this case, the signing production is accompanied by initial mouth-corners down (md) and then forward head tilt (ht-f) and wide-open eyes (we). These non-manual cues taken together convey surprise.

As shown in the examples above, prosodic markers do not necessarily occur one after the other, but they can be produced simultaneously in a layering fashion. This possible overlapping distribution is a typical feature of sign language prosody.

In sign languages, prosody can be conveyed in different ways and with different articulators. An important distinction that must be acknowledged is that between manual and non-manual prosodic markers. If we look at the prosody conveyed by the hands, the main manual prosodic features are: the movement component, the spreading of the non-dominant hand, and hand switching. Movement includes features, such as rhythm, length or duration, and tension. Even absence of movement (i.e. pauses) can convey important prosodic information, for example the boundary between prosodic constituents. The non-dominant hand used in two-handed signs [PHONOLOGY 1.4.2] may be maintained in the following signs. This spreading phenomenon usually marks a precise prosodic domain. It can also produce a semantic contribution as in the case of buoys [LEXICON 1.2.3]. Hand switching (i.e. the reversal from one hand to the other) can represent an indicator of prosodic boundary. Prosodic markers realised non-manually may involve facial expressions (eyebrows, eye aperture, eye gaze, cheeks, mouth, lips, chin position), mouthing and mouth gestures, head position, shoulder position, and body posture.

Prosodic markers can also be classified according to what is actually marked. This categorisation distinguishes between boundary markers (or edge markers), which mark either the beginning or the end of prosodic constituents, and domain markers, which spread over the entire extent of prosodic constituents. Below, we show a LIS sentence to illustrate the distinction between boundary and domain prosodic markers and also the layering distribution of different markers.

	sq	eb
	re	hn
‘donna’ [pe]	‘prima’ [lavo]	‘banca’

WOMAN PE_a FIRST IX_a WORK $BANK_b$ $INSIDE_b$

‘The woman who is first (on the list) works in a bank.’

From a syntactic perspective, this example is composed by a relative clause (WOMAN PE FIRST IX) followed by a main clause (WORK BANK INSIDE). These two larger prosodic domains are differentiated by the presence/absence of domain prosodic markers: squinted eyes and raised eyebrows (i.e. the typical non-manual markers of relative clauses, [SYNTAX 3.4.6]) spread over the first domain, whereas neutral facial expressions mark the second one. Moreover, the two prosodic domains are separated by specific boundary prosodic markers, namely a signing pause, an eye blink, and a head nod. Another observation concerns the spreading of mouthing. Specifically, we find that *prima*, ‘first’, spreads over the signs FIRST and the adjacent indexical IX.

A similar case is the spreading of *banca* 'bank' over the signs BANK and the adjacent preposition INSIDE. Both cases are interesting from a prosodic perspective because they show that mouthing is used as a domain marker signalling the presence of a small prosodic constituent (i.e. prosodic word, [PHONOLOGY 2.2.1]).

Prosodic descriptions usually deal with two types of domains, which are reflected in the structure of this chapter: i) domains at the lexical level, such as syllable and foot [PHONOLOGY 2.1] and ii) domains above the lexical level, such as prosodic word, phonological phrase, intonational phrase, and phonological utterance [PHONOLOGY 2.2]. The remainder of the chapter addresses the issues of intonation [PHONOLOGY 2.3] and interaction [PHONOLOGY 2.4]. For further details about interaction in LIS, the reader is referred to [PRAGMATICS 10].

2.1 The lexical level

Between the phonemic level (i.e. the set of phonemes used in a language) and the lexical level (i.e. single lexical entries belonging to the lexicon of the language) we find two prosodic constituents: the syllable [PHONOLOGY 2.1.1] and the foot [PHONOLOGY 2.1.2]. Therefore, the prosodic hierarchy included in this (sub-)lexical level is the following: (phonemic level) - - - syllable - - - foot - - - (lexical level).

2.1.1 Syllable

The movement component [PHONOLOGY 1.3] plays a very important role in the articulation of signs because it determines the dynamic flow and allows the other formational parameters (handshape, orientation, and location) to change during the signing production. The importance of movement is also sustained by the observation that signs must include at least one movement. If they lack movement, they are considered ill formed. To repair an ill-formed sign, an epenthetic movement needs to be inserted [PHONOLOGY 3.2.1]. Given the prominent role of movement in sign articulation, many scholars consider it as the nucleus of the sign syllable.

The syllable is defined as an intermediate prosodic unit between the phoneme and the foot. The number of syllables contained in a sign is determined on the basis of the number of sequential movements produced. If the sign contains one movement segment only, as LIFE (a), it is considered a monosyllabic sign. Conversely, if it contains two movement segments, as LIVE (b), it is considered a disyllabic sign.

a. LIFE

b. LIVE

Interestingly, the two examples above show a minimal pair of signs that are distinguished by syllable number only (one vs. two syllables).

The movement component also determines syllable weight. Like in other languages, in LIS, syllables can be of two types: light and heavy. A light syllable can be recognized by the presence of a simple movement, which can be a primary movement (a) (otherwise known as path movement, [PHONOLOGY 1.3.1], or a secondary movement [PHONOLOGY 1.3.2], be it a handshape change (b) or an orientation change (c).

a. STREET

b. SWITCH_ON

c. OPEN

These three examples count as monosyllabic signs, and each one includes one light syllable. On the other hand, a heavy syllable is characterised by a complex movement, which is defined as the simultaneous combination of two movements. In LIS, it is possible to combine: i) a path movement with a handshape change, as in COPY (a), ii) a path movement with an orientation change, as in FIRST_TIME (b), and iii) a handshape change with an orientation change, as in CASE (c).

a. COPY

b. FIRST_TIME

c. CASE

These three examples count as monosyllabic signs and each one includes one heavy syllable.

Syllables in LIS may also differ in terms of visual sonority. The degree of sonority depends on movement prominence, in particular on the kind of articulatory joint used to produce the movement. The closer the joint is to the signer's body, the higher the sonority of the relevant syllable. For sign language syllables, the following sonority hierarchy has been identified: shoulder > elbow > wrist > base joints > non-base joints (from the most to the least prominent joint). To illustrate, we present five LIS signs, ordered from the highest to the

lowest level of sonority: ADULT (shoulder), THANK_YOU (elbow), SPRING (wrist), DUCK (base joints), and TITLE (non-base joints).

a. ADULT

b. THANK_YOU

c. SPRING

d. DUCK

e. TITLE

2.1.2 Foot

A foot is a prosodic constituent that dominates the syllable and is itself dominated by the prosodic word. So, a foot is composed of syllables and, in turn, feet compose prosodic words. The discussion about this intermediate prosodic level is relevant to this chapter because, contrary to other sign languages (which show a tendency toward monosyllabic signs), LIS shows a tendency for signs to be at least disyllabic, and hence to be internally more complex.

To provide an inventory of LIS rhythmic structure, it is worth looking at the patterns that are attested in the language. The possible combinations of syllables are the following: light + light (with repetition), light + light (with no repetition), heavy + heavy (with repetition), heavy + heavy (with no repetition), light + heavy, and heavy + light. Below, one example for each pattern is provided and discussed.

By definition, the light + light syllable alternation includes two simple movements. These can be of the same type and repeated twice, as in STUPID, which requires the repetition of an orientation change.

STUPID

Note that the same type of movement can be produced twice with a change in the angle of the second movement. For example, the sign TABLE_CLOTH is articulated with two path movements interpolated with a 90° angle change: as a consequence, the first one is straight and horizontal, while the second one is straight and vertical.

TABLE_CLOTH

A similar case, which however is obtained through a 180° angle change, is the sign TENNIS.

TENNIS

Another (less frequent) possibility is light + light with no repetition: it combines two simple movements that look different. One such case is the sign LEAGUE, which displays a circular path movement followed by a straight horizontal path movement.

LEAGUE

The heavy + heavy syllable alternation includes two complex movements, which again can be the repetition of the same kind of movement, as in DIRTY (a) or two different movements, as in DISREGARD (b).

a. DIRTY

b. DISREGARD

The sign DISREGARD includes two different complex movements: a path movement combined with handshape change (closing from curved open L to closed G) followed by a path movement combined with handshape change (opening from closed G to L).

Heavy and light syllables can also be combined together, even if such configurations are not frequent in the LIS lexicon. We can find both the light + heavy and the heavy + light patterns. An example of light + heavy is the sign IMPORTANT, which is composed by a downward path movement followed by an upward movement combined with handshape change (opening from A to L handshape).

IMPORTANT

An example of heavy + light is the idiomatic sign MAKE_FUN_OF, which is realised in the first syllable with forward path movement and handshape change (closing from curved open L to closed G) and in the second syllable with a circular path movement.

MAKE_FUN_OF

The variation between light and heavy syllables determines prominence in the signing flow.

2.2 Above the lexical level

The remainder of the chapter deals with the prosodic domains above the lexical level. In particular, we discuss the prosodic markers attested in the prosodic word [PHONOLOGY 2.2.1], in the phonological phrase [PHONOLOGY 2.2.2], in the intonational phrase [PHONOLOGY 2.2.3], and in the phonological utterance [PHONOLOGY 2.2.4]. To sum up, the prosodic hierarchy relevant to this section is the following: (lexical level) - - - prosodic word - - - phonological phrase - - - intonational phrase - - - phonological utterance.

2.2.1 Prosodic word

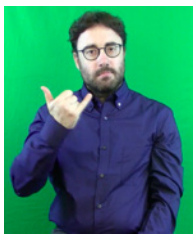
The prosodic word is the constituent that dominates the foot and is dominated by the phonological phrase. In most of the cases, it corresponds to one single lexical sign, as in the monosyllabic sign FOOTBALL.

FOOTBALL

However, there are also cases in which prosodic words involve more than one sign: compounding and cliticisation. As we will see, prosodic words in LIS may be marked by mouthing and other non-manuals as domain markers and may involve phonological phenomena aimed at reducing contrastive features, such as different handshapes or different movements.

As for compounds [MORPHOLOGY 1], the two stems constitute a potential single prosodic word. It has been observed a tendency to reduce phonological contrasts between the stems, for example through assimilation [PHONOLOGY 3.1.1] or non-dominant hand spread. By making the stems look more similar, a more well-formed prosodic word is produced. For example, in the citation form of the compound HEAD^CL(Y): 'a_lot' (meaning 'intelligent'), the stems display very different handshapes: G and Y. In a widespread variant of this compound, shown below, regressive handshape assimilation is observed: the handshape of the first stem, G, assimilates the selected fingers of the handshape of the second stem (i.e. extended thumb and extended pinky).

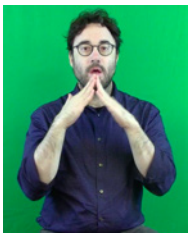
HEAD
'Intelligent'



CL(Y): 'a_lot'

The stem HEAD is thus produced with a complex handshape, which is phonologically more similar to the handshape of the second stem. The reduction of phonological contrast between the two stems results in a more well-formed prosodic word.

In cliticised forms, a functional sign such as a weak pointing sign attaches to a lexical host. In this configuration, handshape assimilation [PHONOLOGY 3.1.1] or coalescence [PHONOLOGY 3.1.2] may occur. The example below shows a prosodic word formed by a lexical sign, HOUSE, and a cliticised determiner, IX(B), which has undergone progressive assimilation.



HOUSE

IX(B)

'That house'

Prosodic words formed by more than one sign may also include a negative sign. In the example below, the negative sign EXIST.NOT attaches to the predicate NEED. The prosodic word is accompanied by a slight side-to-side headshake, which is the typical non-manual marker conveying negation [SYNTAX 1.5.2]. In this case, it spreads regressively from the negation to the predicate, thus functioning as a domain prosodic marker.

hs

NEED^EXIST.NOT

'It's not necessary.'

According to their citation forms, NEED is articulated with S handshape and EXIST.NOT with L handshape. When the two signs form a prosodic word, we may observe two phonological processes. Some signers produce NEED with L handshape, thus realising regressive assimilation. Other signers produce a handshape change opening from closed G handshape to L handshape, as shown above.

A similar example is the prosodic word formed by the predicate SEE and the negative sign NEVER. In their citation forms, SEE is articulated with V handshape, while NEVER requires I handshape. To reduce the phonological distance between the two handshapes, the first

one is reduced from V to G (i.e. from extended index and middle finger to extended index only). The movement component also undergoes assimilation: while in the two basic forms two different path movements are produced (forward in SEE and ipsilateral in NEVER), the prosodic form displays one movement only.

SEE^NEVER
'I've never seen it.'

Another example of prosodic word formed by two signs is WOMAN PERSON. In this case, the lexical sign WOMAN is followed by a functional sign localising the referent in the signing space. The insertion of the sign PERSON is functional to verb agreement, as shown by the indexes in the glosses.

'donna'
WOMAN PERSON$_{3}$ $_{3}$ FLIRT$_{1}$
'The woman is flirting with me.'

An effect of the prosodic word is that the movement repetition required by the citation form of the sign WOMAN disappears. Interestingly, the mouthing associated with WOMAN, 'donna', spreads over the whole prosodic word. In this case, mouthing functions as domain marker.

2.2.2 Phonological phrase

Phonological phrases are composed of one or more prosodic words. They generally correspond to syntactic constituents, such as nominal phrases, prepositional phrases, and verbal phrases. As we will see, phonological phrases in LIS may be marked by non-dominant hand spreading as domain marker, as well as by head nod, eye blink, movement repetition, final hold, and phrase-final lengthening as right-edge markers.

It may happen that after the articulation of a two-handed sign, the non-dominant hand remains in place until the end of the phonological phrase. This phenomenon, known as *non-dominant hand spreading*, functions as domain prosodic marker. It can be observed in the example below. The phonological phrase starts with the symmetric two-handed sign BOOK, articulated with B handshape. The non-dominant hand in B handshape is maintained through the whole phonological phrase, while the dominant hand articulates another sign, IX(dem).

hn
dom: BOOK IX(dem) INTERESTING
n-dom: BOOK B-------
'That book is interesting.'

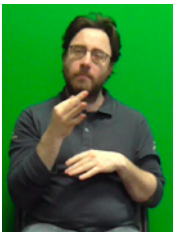
At the right edge of the phonological phrase, a head nod is produced. In the rightmost periphery of phonological phrases, we may also find other boundary markers. For instance, final lengthening is a common prosodic phenomenon occurring at the end of LIS nominal expressions. In particular, the duration of postnominal modifiers tends to be longer than that of prenominal modifiers. The adjective BEAUTIFUL is one of the few adjectives in LIS that can occur before or after the noun [SYNTAX 4.5.1], as shown in (a) and (b), respectively.

a. TRAVEL AMERICA IX(loc) BEAUTIFUL EXPERIENCE
'My travel to the States was a beautiful experience.'

b. TRAVEL AMERICA IX(loc) EXPERIENCE BEAUTIFUL
'My travel to the States was a beautiful experience.'

The screenshots below show that, under the same context and semantic interpretation, the distribution of the adjective BEAUTIFUL has an effect on its duration. When it is produced before the noun (a), the path movement is shorter and therefore the sign duration is shorter. Moreover, the sign in phrase-final position, EXPERIENCE, exhibits three forward movements, while in its citation form only two movements are required.

Table 2 Prenominal adjective

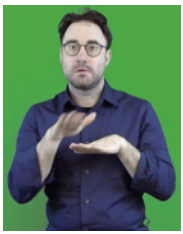


	BEAUTIFUL	EXPERIENCE
duration	shorter	longer
movement	x 1	x 3

When BEAUTIFUL is produced after the noun (b), the path movement is longer and thus the sign is characterised by longer duration. As for

the noun EXPERIENCE, being in phrase-initial position, the sign exhibits its two movements only.

Table 3 postnominal adjective

	 EXPERIENCE	BEAUTIFUL
duration	shorter	longer
movement	x 2	x 1

The final lengthening observed at the end of the phonological phrase is generally perceived as a hold in the final sign. Final lengthening at the end of the phonological phrase is also observed when this domain does not appear in sentence-final position, as can be observed in the example below.

eb
HOUSE INSIDE BOOK ZERO
'There isn't any book in the house.'

The phonological phrase HOUSE INSIDE is marked by final lengthening and movement repetition on the rightmost sign (the preposition INSIDE), as well as eye blink right after it. As for movement repetition, it is important to note that, in its citation form, INSIDE is articulated with a single downward movement. Conversely, in the example above, this sign is characterised by movement reduplication (i.e. two downward movements).

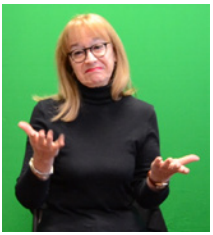
2.2.3 Intonational phrase

Intonational phrases constitute a larger prosodic domain, composed of one or more phonological phrases. They generally correspond to syntactic constructions, such as topicalisation [SYNTAX 2.3.3.3], parentheticals, restrictive and non-restrictive relative clauses [SYNTAX 3.4]. Layering of different non-manual markers in this prosodic domain is expected.

As in other sign languages, the boundaries of intonational phras-

es in LIS are often marked by signing pauses, lowering of the hands, eye blinks, and head nods. Manual signs and gestures with discourse function (e.g., WELL and PALM_UP, shown below) may also occur at the beginning or at the end of this prosodic domain.

a. WELL



b. PALM_UP

As for domain markers, main clauses usually appear with neutral non-manuals and differ from embedded clauses, which conversely display marked non-manuals spreading over the whole clause. The type of non-manual domain markers depends on the type of embedded clause (for an overview, see [PHONOLOGY 2.3]. To illustrate, we present below a case of topicalisation [PRAGMATICS 4.2].

hn
eb
sq hs
CAKE IX(dem) FLOUR EMPTY
'This cake, it has no flour.'

The topicalised constituent, CAKE IX(dem), is separated from the rest of the sentence by two boundary markers produced right after the pointing sign: head nod and eye blink. The two parts of the sentence are further distinguished by domain markers, in that the topicalised constituent is marked by squinted eyes, while the rest of the sentence is not. Note that the side-to-side headshake co-occurring with

the negative quantifier EMPTY is not a prosodic marker, but the typical non-manual associated with negative signs.

As similarly observed at the end of phonological phrases, the right edge of intonational phrases is also marked by final lengthening. This prosodic phenomenon has been found in particular on sentence-final *wh*- signs (e.g. WHAT, HOW, WHO) and with sentence-final aspectual marker DONE, but it is likely to be a general phrase final lengthening effect.

2.2.4 Phonological utterance

The phonological utterance represents the largest prosodic domain. It may include one or more intonational phrases. Being this prosodic domain an interface with other aspects of linguistic and non-linguistic communication, phonological utterances allow to observe a variety of discourse phenomena: coherence [PRAGMATICS 5.1], cohesion [PRAGMATICS 5.2], reference tracking [PRAGMATICS 2], turn regulation [PRAGMATICS 10.2].

2.3 Intonation

Intonation represents the prosodic contour spreading through the whole utterance. It is a complex interface phenomenon since it closely interacts with other linguistic domains, such as syntax, semantics and pragmatics.

All human languages are endowed with intonational patterns, which are superimposed on segmental material. There is general consensus on the functional parallelism between intonational melodies in spoken languages and visual patterns in sign languages. In signed discourse, strings of manual signs are accompanied by non-manual features creating intonational patterns.

Crucially, different facial expressions often co-occur in a layering fashion, thus realising bundles of non-manual markers. In the polar interrogative shown below, we can observe a polar intonation realised by simultaneously combining raised eyebrows and forward head tilt.

ht-f
re
HOUSE IX BUY
‘Have you bought the house?’

The intonational contours characterising the different syntactic constructions in LIS are discussed in detail in the relevant sections in the Syntax Part [SYNTAX]. To illustrate, we present here an overview of the non-manual markers associated with the main syntactic constructions in LIS.

Table 3 Overview of different non-manual markers, their grammatical function and spreading domain

Syntactic constructions	Non-manual markers	Spreading domain
Polar question [SYNTAX 1.2.1]	Raised eyebrows	Whole domain (highest peak at the end)
	Forward head/body lean	Especially at the end of the domain
Wh- question [SYNTAX 1.2.3]	Lowered eyebrows	Interrogative *wh*- sign or the whole interrogative sentence
Restrictive relative clause [SYNTAX 3.4]	Raised eyebrows	Whole domain (highest peak over the sign PE) or over PE only
	Squinted eyes	Whole domain (highest peak over the sign PE) or over PE only
	Head nod	Right edge
	Eye blink	Right edge
Non-restrictive relative clause [SYNTAX 3.4.7]	Head nod	Left and right edge
	Eye blink	Left and right edge
Conditional clause [SYNTAX 3.5.1]	Raised eyebrows	Whole domain
	Chin down	Right edge
Contrastive focus [PRAGMATICS 4.3.1]	Raised eyebrows	Whole domain
	Wide-open eyes	Whole domain
Aboutness topic [PRAGMATICS 4.3.2]	Raised eyebrows	Whole domain
	Squinted eyes	Whole domain
	Eye blink	Right edge
	Head nod	Right edge

2.4 Interaction

For details on the cues that are used by LIS signers to regulate interaction, the reader is referred to the Chapter on Communicative Interaction [PRAGMATICS 10].

2.4.1 Turn regulation

To be developed.

2.4.2 Back-channeling

To be developed.

Information on Data and Consultants

The descriptions in this chapter are based partially on the references below and on the elicitation of new data. The linguistic data illustrated as images and video clips have been checked through acceptability judgments and have been reproduced by Deaf native-signing consultants.

Authorship Information

Lara Mantovan

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3 Phonological processes

Summary 3.1 Processes affecting the phonemic level. – 3.2 Processes affecting the syllable. – 3.3 Processes affecting the prosodic word. – 3.4 Processes affecting higher prosodic units.

In human languages, the realisation of phonemes can be influenced by several factors, thus resulting in different output forms. Specifically, in certain phonological environments, a phoneme (or a set of phonemes) can be subject to manipulations, which are due to the application of so-called phonological processes. These can be defined as rules or constraints that determine how phonemes are to be produced in a given phonological environment.

Generally speaking, in sign languages the implementation of phonological processes might be motivated by the need to maximize either ease of articulation or ease of perception. In other cases, they might be used to adapt loan signs [LEXICON 2] to the phonemic inventory of the target language. They can also result from the application of morphological processes, such as compounding, or syntactic reasons. Phonological processes can apply to different domains: phoneme, syllable, prosodic word, etc. Their occurrence can be obligatory or optional: that is, some of them are always applied by signers, while others might depend on other factors, such as the formality-informality of the setting.

This chapter discusses the main phonological processes occurring in LIS, providing illustrative examples. For the sake of clarity, the different processes are grouped according to the phonological component affected by the process itself. Specifically, we describe

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processes affecting the phonemic level [PHONOLOGY 3.1], syllable [PHONOLOGY 3.2], prosodic word [PHONOLOGY 3.3] and higher prosodic units [PHONOLOGY 3.4]. Note that this chapter mainly concentrates on those phonological processes occurring in the synchronic grammar, shared by LIS signers at present.

3.1 Processes affecting the phonemic level

This section presents those phonological processes affecting the shape of the smallest phonological unit, the phoneme. In LIS, we find five classes of phonemes (also called phonological parameters): handshape, orientation, location, movement, and non-manual markers [PHONOLOGY 1]. Each of them can be affected by phonological processes. Here we illustrate assimilation, coalescence, movement reduction and extension, weak hand drop, handshape drop, nativisation, and metathesis.

3.1.1 Assimilation

Assimilation is a process by which a sign takes on (i.e. assimilates) one or more features of a phoneme belonging to a neighbouring sign. This phonological process can affect all phonological parameters of a sign. The most typical case is handshape assimilation, which occurs when the handshape of a sign becomes more similar to the handshape of a sign close to it. Below, we can observe an example of assimilation.

YEAR^ONE FOGGIA IX_1 COMMUTE
'I commuted to Foggia for one year.'

The first-person pronoun (IX_1) is not produced with its canonical handshape (extended index finger), but with the handshape of the following sign (flat open 4 in the sign COMMUTE). In this example, assimilation operates backwards because the handshape of COMMUTE influences the handshape of the preceding sign. This process is known as regressive (or anticipatory) assimilation.

Assimilation can also occur in the opposite direction. When the change operates forwards, it is called progressive (or perseverative) assimilation. It is exemplified below.

WORK CONTINUE SO_FAR
'I have kept working.'

In the example above, the symmetrical two-handed sign SO_FAR is not produced with its canonical handshape (extended index finger), but with the handshape of the preceding sign (extended 5 in the sign CONTINUE).

Another possibility is the so-called bidirectional assimilation, a combination of progressive and regressive assimilation. In this case, both the preceding and the following forms exert an influence on the form undergoing assimilation.

FUTURE IX_1 COMMUTE BE_FED_UP
'In the future, I'll be fed up to commute.'

In this example, the first-person pronoun (IX_1) is not produced with its canonical handshape (extended index finger), but with the handshape of both the preceding and following signs (FUTURE and COMMUTE are articulated with flat open 4).

It is important to notice that assimilation can be total or partial. In total assimilation, all features of the neighbouring form are copied. By contrast, in partial assimilation, only some features are copied. To see the difference between these two types of assimilation, we observe different realisations of INTELLIGENT. This is a compound sign formed by the sign HEAD and a Y-handshape classifier conveying the concept of a large amount. In its original form, the first part of the compound is articulated with extended index finger, as shown below.

INTELLIGENT (citation form)
(recreated from Battaglia 2011, 198)

In a variant of INTELLIGENT, the first part of the compound undergoes partial assimilation. It copies only one particular feature of the handshape of the second part, namely extended thumb. Therefore, the resulting handshape includes extended index finger and thumb.

INTELLIGENT (partial assimilation)
(recreated from Battaglia 2011, 198)

In another variant of the sign, the first part of the compound undergoes total assimilation. It copies all the features of the handshape of the classifier: both extended thumb an extended pinky finger. Therefore, the resulting handshape includes extended index finger, thumb, and pinky.

INTELLIGENT (total assimilation)
(recreated from Battaglia 2011, 198)

As introduced above, assimilation can occur with all phonological parameters. In other words, a sign can assimilate the handshape, location, movement, or orientation of a neighbouring sign. We provide below an example of orientation assimilation. The cardinal TWO is systematically articulated by some LIS signers (including our informant) with inward palm orientation [LEXICON 3.10.1.1].

TWO (citation form)

However, if TWO is followed by WEEK, a two-handed sign requiring outward palms, it can assimilate its orientation.

TWO WEEK
'Two weeks'

Furthermore, we illustrate the process of location assimilation comparing the two examples below. The aspectual marker DONE is used to indicate that an event happened before the time of utterance [LEXICON 3.3.1]. This sign typically follows the main verb and is produced in the neutral space. As shown in (a), both the verb and DONE are articulated in an unmarked area in the signing space. However, when DONE follows a verb that is articulated in a different location, assimilation might occur. As shown in (b), DONE follows the verb RUN, which is characterised by a linear contralateral movement. The informant is left handed, so the endpoint of RUN is in the right area of the neutral space. The sign DONE assimilates this marked location, and thus is articulated on the right side as well.

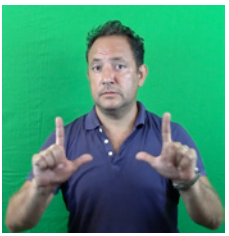
a. G-I-A-N-N-I IX_a HOUSE BUY DONE
'Gianni bought the house.' (based on Zucchi 2017)

b. G-I-A-N-N-I IX_a $_a$RUN$_b$ DONE$_b$
'Gianni ran.' (based on Zucchi 2017)

Assimilation can also apply to a more local domain. We call this process *internal assimilation*. Some two-handed signs, whose citation form requires that the hands articulate two different handshapes, can undergo assimilation from the dominant to the non-dominant hand. For example, the two-handed sign WEEK is typically produced with extended 5 on the non-dominant hand and L handshape on the dominant hand (a). Recall that when both hands behave as active articulators in two-handed signs, they typically share the same handshape [PHONOLOGY 1.4.1]. This sign is articulatory exceptional because, although both hands move, two different handshapes are used: 5 in the non-dominant and L in the dominant hand. In a variant of WEEK, the non-dominant hand takes on the handshape of the dominant hand (b). As a re-

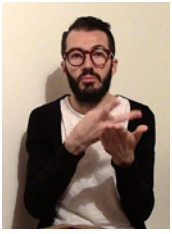
sult, the L handshape is employed by both hands. This assimilation process might be motivated by the principle of ease of articulation.

a. WEEK (citation form)
(recreated from Radutzky 2009, 21)

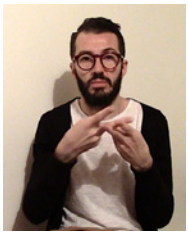


b. WEEK (assimilation)
(recreated from Radutzky 2009, 21)

Internal assimilation can also occur in asymmetrical two-handed signs, i.e. signs produced by both hands in which only the dominant hand behaves as active articulator. For example, the verb TRY in its original form is produced with extended 5 on the non-dominant hand and V handshape on the dominant hand, which is the only hand moving (a). In a variant of TRY, assimilation occurs from the handshape of the dominant to that of the non-dominant hand (b). As a result, the V handshape is used by both hands.



a. TRY (citation form)
(recreated from Radutzky 2009, 20)



b. TRY (assimilation)
(recreated from Radutzky 2009, 20)

3.1.2 Coalescence

Coalescence is a phonological process that merges two phonological segments into a single one. This typically occurs in spontaneous signing when a symmetrical two-handed sign merges with a pointing sign.

For instance, let us consider the sign CLASSROOM. In its citation form, it is a symmetrical two-handed sign [PHONOLOGY 1.4.1] because the dominant and non-dominant hands share the same handshape (extended unspread 5) and secondary movement (flattening).

CLASSROOM

In spontaneous discourse, the sign CLASSROOM can merge with a locative pointing sign, IX(loc), thus producing an instance of coalescence. The sentence below exemplifies this phenomenon.

CLASSROOM^IX(loc) STUDENT MALE THREE
'In this classroom, there are three male students.'

Taking a closer look at the coalesced form CLASSROOM^IX(loc), we can observe that at the beginning the sign CLASSROOM is produced by the two hands, as in the citation form. This sign requires the two hands to undergo handshape change: specifically, the selected fingers should flex at base joints.

CLASSROOM^IX(loc) (before fusion)

By effect of coalescence, in the transition between the two handshapes, the dominant hand does not undergo flattening as the non-dominant hand, rather, it changes its shape producing the typical handshape of locative pointing signs, that is extended index finger.

CLASSROOM^IX(loc) (after fusion)

3.1.3 Movement reduction and extension

In some cases, LIS signs can undergo movement modification. Specifically, in the modified form, the movement component can be either reduced or extended, thus consisting in smaller or larger movements with respect to the citation form.

Movement modification can be motivated by several linguistic as well as extra-linguistic factors. Morphological processes, such as pluralisation [MORPHOLOGY 4.1] and deverbalisation [MORPHOLOGY 2.1.2.1], might have an impact on the movement component. Movement reduction may be motivated by a drive toward articulatory ease and effort reduction. On the other hand, external factors that may cause reduced movements are space limitations (e.g. video chatting) or situational restrictions on intended audience (i.e. whispering mode). Instead, movement extension may be motivated by emotions such as excitement and anger (i.e. shouting mode), emphasis, or special registers (e.g. child-directed signing).

Generally speaking, movement can involve different articulatory joints: the shoulder, the elbow, the radioulnar, the wrist, the base joint (the knuckles which connect the digits to the hand) and the interphalangeal joints (the knuckles at the midfinger). It is important to distinguish two different types of movement modification: i) reduction or extension occurring at the same joint where movement is produced in the citation form and ii) reduction or extension occurring at a different joint. These two categories are described in detail in the next sections.

3.1.3.1 Without joint shift

Considering movement modification without a switch of the articulatory joint, we present a couple of LIS examples, one involving reduction and the other extension.

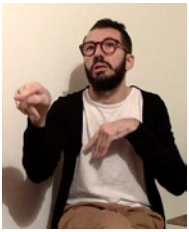
Movement reduction can be observed in some cases of plural reduplication morphology [MORPHOLOGY 4.1]. Some nouns articulated in the neutral space can be pluralised by repeating the sign at differ points in space. To illustrate, we show below the sign CITY as well as its plural form CITY++.

a. CITY
'City'
(based on Volterra 2004, 187)

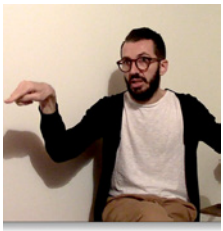
b. CITY++
'Cities'
(based on Volterra 2004, 188)

The sign CITY is articulated with a downward path movement realised at the elbow joint. The pluralised form, CITY++, requires this movement to be repeated at different points in the neutral space. As a result, the movement of the sign is still realised at the elbow joint, but it is phonologically reduced.

Movement extension can be found in pointing signs. Consider, for example, pointing signs expressing locative information, such as (a). If the signer wants to point toward a specific locus at the periphery of the signing space, the pointing sign must be articulated with movement extension, as in (b).



a. IX(loc)
'There'



b. IX(loc)$_{[distal]}$
'Over there'

3.1.3.2 With joint shift

Some instances of movement reduction or extension can involve a joint shift. This shift can occur in two directions: either to a joint closer to the signer's torso (i.e. proximalisation) or to a joint that is further away from the signer's torso (i.e. distalisation).

On the one hand, proximalisation results in movement extension, since the sign is produced by a bigger articulator. An example of proximalisation is the LIS sign CHERRY. This sign iconically derives from Italian children's habit to tuck bunches of cherries behind their ears. For this reason, its original form required the index and middle fingers to grasp the back of the ear. For ease of perception, the grasping component is usually substituted by a movement at the wrist or even elbow joint.

a. CHERRY (original form)

b. CHERRY (proximalisation)

Other signs undergoing a similar process of proximalisation are BIRTHDAY and HEARING_AID.

Proximalisation can also be used to express particular emphasis. This is exemplified below by the sign FUN: in its citation form, the movement is realised at the wrist joint (a), while in the emphasised form, the movement can be realised at the elbow joint (b).

a. FUN (citation form)

b. FUN (proximalisation)

On the other hand, distalisation results in movement reduction, since the sign is produced by a smaller articulator. An example of distalisation is the LIS sign VOLLEYBALL. In the citation form, this sign is artic-

ulated with a repeated forward movement realised at the elbow joint (a). This type of movement iconically reflects the way volleyball players use their arms to pass the ball. An alternative version of VOLLEYBALL employs a more distal movement, realised at the wrist joint (b).

a. VOLLEYBALL (citation form)

b. VOLLEYBALL (distalisation)

From a purely articulatory perspective, moving distal joints (e.g. finger knuckles) generally requires less physical effort than moving proximal joints (e.g. shoulder and elbow). To favour ease of articulation, signers tend to use distal articulation more often than proximal articulation. However, it must be noted that distal movements require more motor skills and control than proximal movements.

3.1.4 Weak hand drop

Sometimes, LIS signers may realise two-handed signs by using the dominant hand only. This phenomenon involving articulatory reduction is usually referred to as *weak hand drop*. This phonological process is optional and, according to our informants, it is typically observed in rapid or relaxed signing. An example of weak hand drop in LIS is provided below.

a. LIFE (citation form)

b. LIFE (weak hand drop)

The citation form of the sign LIFE requires both hands to move downward on the signer's torso, as shown in (a) above. As a result of weak hand drop, this sign can be realised with the dominant hand only, as in (b) above, with no change in meaning. Another two-handed sign that can undergo weak hand drop is DIRTY. In the examples above showing weak hand drop, the sign LIFE is realised with the right hand by a right-handed signer, while the sign DIRTY is realised with the left hand by a left-handed signer.

a. DIRTY (citation form)

b. DIRTY (weak hand drop)

Weak hand drop in LIS is constrained by both phonological and semantic factors. From a phonological perspective, this process is observed more frequently in symmetrical two-handed signs [PHONOLOGY

1.4.1], i.e. signs in which both hands move, such as LIFE and DIRTY. Some of the signs belonging to this category, such as KITCHEN, involve alternating movement, rather than synchronic movement of the hands. In these cases, weak hand drop is unlikely to occur.

KITCHEN

Weak hand drop appears to be more constrained in asymmetrical two-handed signs [PHONOLOGY 1.4.2], i.e. signs in which the weak hand does not move and serves as location. For example, the asymmetrical sign SISTER cannot be phonologically reduced by weak hand drop.

SISTER

However, it should be noted that other asymmetrical two-handed signs seem to allow the deletion of the non-dominant hand. Further research is needed to identify the phonological constraints at play.

Deletion of the weak hand in two-handed signs might be constrained by semantic factors as well. For instance, if the sign conceptually involves two referents or two objects, such as ICE_SKATE (shown below), TOGETHER, and FIGHT, then one-handed realisation is not allowed.

ICE_SKATE

Weak hand drop is usually blocked if the use of the two hands is iconically motivated. For example, the sign TEN is realised by extending ten fingers and hence requires the use of both hands.

TEN

3.1.5 Handshape drop

Some LIS signs are articulated with a particular type of secondary movement, namely handshape change. Specifically, the handshape of the sign can undergo opening, closing, flattening, bending, wiggling, rubbing, or spreading movements [PHONOLOGY 1.3.2]. Such handshape change might be blocked as a result of a morphological process, giving rise to a phonological process called *handshape drop*. Typically, the most prominent of the two handshapes involved in the citation form is retained, while the other one is deleted. To exemplify this phenomenon, we consider number inflection both in the verbal [MORPHOLOGY 3.1.2.2] and in the nominal domain [MORPHOLOGY 4.1].

The citation form of the verb WARN involves handshape change from closed 5 to extended 3 (a). This sign can be inflected for num-

ber to express the meaning '(to) warn them/all'. From an articulatory point of view, plural inflection is realised as an arc movement on the horizontal plane (b).

a. WARN (citation form)

b. WARN_{arc} (handshape drop)
'(To) warn them/all'

As a result of this morphological process, the sign WARN above (b) undergoes handshape drop: during the arc movement, only one of the two handshapes involved is retained, namely extended 3.

In the nominal domain, some nouns involving handshape change may undergo handshape drop as well. For example, the citation form of the noun TITLE requires finger bending from spread V to curved open V, as shown in (a) below. This sign can be inflected for number to express plurality ('titles'). From an articulatory point of view, plural inflection is realised by reduplication of the sign and simultaneous displacement in the signing space, as shown in (b) below.

a. TITLE (citation form)

b. TITLE++ (handshape drop)
'Titles'

As a result of plural inflection, the sign TITLE undergoes handshape drop: during the downward displacement, only one of the two handshapes involved is retained, namely curved open V.

3.1.6 Nativisation

Nativisation is a phonological process that may affect some loan signs borrowed from other sign languages, especially those containing phonemic material that is not part of the phonemic inventory of LIS.

For example, this process can be observed in the loan sign WORKSHOP, borrowed from American Sign Language (ASL). In its original form, it is articulated with handshape W (a). Since this handshape is not productively used in the LIS lexicon [PHONOLOGY 1.1.3], it is replaced by an articulatory similar handshape included in the phonemic inventory of LIS: extended 4 (b). It is worth noting that, in the nativised form, the association between the handshape of the sign and the first letter of the corresponding spoken language word is lost.

a. WORKSHOP (ASL)
(recreated from Lerose 2012, 43)

b. WORKSHOP (LIS)
(recreated from Lerose 2012, 43)

Such handshape substitution is a strategy used to accommodate this loan sign to the phonological system of LIS.

3.1.7 Metathesis

Metathesis is a phonological process that changes the order of phonemes in a sign. Consider, for instance, those signs requiring the hand(s) to move from one location to another. Generally, the order in which the two locations are reached is fixed (e.g. from location 1 to location 2). In those signs allowing metathesis, this order can be reversed (e.g. from location 2 to location 1). Importantly, such phonological change does not produce any change in meaning.

In LIS, as far as we know, metathesis is attested in a few signs only. Below, we present a couple of examples: PATIENCE and FACEBOOK. The sign PATIENCE involves a change of location, usually from the contralateral to the ipsilateral area of the chest, as in (a). In some cases, the sign undergoes metathesis in that the location change is from the ipsilateral to the contralateral area of the chest, as shown in (b). Crucially, the meaning of the sign remains the same.

a. PATIENCE (citation form)

b. PATIENCE (metathesis)

A similar case is a variant of the sign FACEBOOK. It is articulated by shifting the B handshape from the contralateral to the ipsilateral cheek (a). By effect of metathesis, the order of the two locations can be reversed, i.e. from the ipsilateral to the contralateral cheek, as shown in (b). Crucially, the meaning of the sign remains the same.

a. FACEBOOK (citation form)

b. FACEBOOK (metathesis)

3.2 Processes affecting the syllable

In sign linguistics, by *syllable* we intend a single movement, be it primary (or path) or secondary movement (handshape/orientation change) [PHONOLOGY 2.1.1]. This section presents those phonological processes affecting the syllable structure of LIS signs. Specifically, epenthesis, syllable reduction, and syllable reanalysis are discussed.

3.2.1 Epenthesis

Epenthesis involves the insertion of phonemic material into a sign. Such phonological process is usually motivated by the need to repair ill-formed syllable structures and hence enhance ease of articulation. This process can affect any of the phonological parameters, but it is most frequently observed with movement. To exemplify epenthesis in LIS, we present one instance of movement epenthesis and one of movement interpolation.

Movement epenthesis occurs in the sign HEAD. In its underlying form, this sign is realised with the G handshape located at the side of the forehead and it does not involve any path movement.

HEAD (underlying form)
(based on Geraci 2009, 27)

Since movement is an essential component of the phonological structure of signs, the underlying form of HEAD represents a phonotactic violation. To repair such ill-formed cluster and allow articulation in isolation, HEAD requires insertion of movement. As a result of epenthesis, the surface form of the sign HEAD is articulated with repeated path movement toward the signer's head.

HEAD (surface form)
(based on Geraci 2009, 27)

Interestingly, when HEAD enters a compound formation, the sonority requirement is satisfied by the other member of the compound, which

provides the movement for the entire sign. As a consequence, in this case, movement epenthesis is not required by the sign HEAD. Below, we provide some examples showing that when HEAD appears as first part of a compound, movement epenthesis is not realised.

a. HEAD^TRANSPARENT
'Psychology' (based on Geraci 2009, 29)

b. HEAD^DONE
'Known' (based on Geraci 2009, 29)

c. HEAD^EMPTY
'Absent-minded' (based on Geraci 2009, 29)

d. HEAD^ CL(Y): 'a_lot'
'Intelligent' (based on Geraci 2009, 29)

Movement epenthesis can affect signs articulated in neutral space as well. Consider, for instance, the case of initialised signs, i.e. signs whose handshape represents the first letter of the corresponding spoken language word. An instance is provided by the sign MONDAY (Ita. *lunedì*), which is realised as an L handshape in neutral space. The underlying form of this sign lacks the movement component.

MONDAY (underlying form)

The ill-formedness of MONDAY is restored by the insertion of a circular path movement. Epenthesis can thus be observed in the surface form of the sign when produced in isolation.

MONDAY (surface form)

The sign MONDAY as well as the other signs for the days of the week can combine with the temporal modifier NEXT, which is articulated with a forward arc movement, as shown below.

NEXT

As similarly observed with the sign HEAD, MONDAY loses its epenthetic movement once it is combined with a sign endowed with movement specification. Indeed, the sign resulting from the combination of MONDAY and NEXT retains the movement of the temporal modifier and blocks the epenthetic movement displayed in the surface form of MONDAY.

MONDAY.NEXT
'Next Monday'

A less typical case of movement epenthesis is represented by movement interpolation. This phonological process implies the insertion of a straight movement in the transition between signs. Below, we show a short sentence including two signs articulated with the dominant hand: the subject WOMAN and the predicate CL(G): 'individual_move'.

WOMAN transition transition transition

CL(G): 'individual_move'
'A woman came up to me.'

In the transition between the two signs, the signer's hand realises a straight movement from the location of the sign WOMAN (close to the cheek) to the initial location of the classifier sign (at a certain point in the ipsilateral space). Note that such transition does not only involve movement interpolation, but also handshape change (from extended 3 to extended G) and orientation change (from outward palm to contralateral palm).

3.2.2 Syllable reduction

Some signs involve two movements repeated in sequence, thus they are made of two syllables. When disyllabic signs are included in compound constructions, they may lose one syllable, i.e. lose one movement. Such phonological process is called syllable reduction.

An example of a disyllabic sign in LIS is the verb EAT. In its citation form, it is articulated as a flat closed 5 handshape moving toward the chin with a repeated movement.

EAT

When combined with the aspectual marker DONE, EAT may undergo syllable reduction and hence be articulated with one movement only.

EAT^DONE
'Eaten'

If we compare these two examples, EAT included in the compounded construction differs from its citation form in that it is articulated as a monosyllabic sign.

3.2.3 Syllable reanalysis

Some disyllabic signs, i.e. signs with two movements, do not display repeated movement over the same location, rather they require a displacement of the hand(s) from one location to another. As a result of a phonological process known as syllable reanalysis, the transitional movement between the two locations may be reanalysed as the only movement of the sign.

To illustrate, the citation form of the LIS two-handed sign INSTITUTE is articulated as two F handshapes realising two short path movements: the first one ends with final contact on the higher torso, the second one with final contact on the lower torso. As shown in the video below, this location change is made possible by a transitional downward movement.

INSTITUTE (citation form)
(based on Geraci 2009, 16)

In the reanalysed version of INSTITUTE, the transitional movement between higher and lower torso becomes the only movement of the sign. As a consequence of the deletion of repeated movement, the sign is reanalysed as monosyllabic.

INSTITUTE (reanalysed form)
(based on Geraci 2009, 16)

3.3 Processes affecting the prosodic word

In this section, we focus on the prosodic constituent higher than the syllable: the prosodic word. The phonological processes occurring at this level usually have a morphological or syntactic motivation. In this section, reduplication and some effects of cliticisation and compounding are described.

3.3.1 Reduplication

Reduplication is a morphosyntactic phenomenon highly productive in LIS. It can be used to convey several grammatical functions, such as plurality [MORPHOLOGY 4.1], reciprocity [MORPHOLOGY 3.1.3], exhaustivity [MORPHOLOGY 3.1.2.3], and different types of verbal aspect [MORPHOLOGY 3.3]. We refer the reader to the aforementioned sections for details about the use of reduplication for morphological purposes.

From a phonological perspective, reduplication can be realised as repetition of the sign without dislocation (simple reduplication), or it can be combined with a shift in the signing space (e.g., sideward reduplication). Simple reduplication can be observed in aspectual modifications. As shown in (a) below, the verb GO is a one-handed sign articulated with a simple path movement in the neutral space. This sign can be reduplicated, as in (b), maintaining the same starting point and the same end point to express habitual aspect [MORPHOLOGY 3.3.1.1]. This aspectual modification indicates that the event of going to a certain place happened repeatedly over time.

a. GO (citation form)

b. GO++ (habitual aspect)
'Used to go'

Sideward reduplication can be observed in the plural form of some nouns: the sign is typically repeated with slight lateral dislocations toward the ipsilateral region of the signing space. To illustrate, we show below the noun VILLA in its citation form (a) and plural form (b).

a. VILLA (citation form)

b. VILLA++ (plural form)
'Villas'

Reduplication may involve either all phonological components of a sign or some selected features. For example, the noun CHILD is a one-handed sign articulated in the neutral space with a short, repeated movement. When pluralised, the sign undergoes sideward reduplication. In the reduplicated forms, the movement component of CHILD can be phonologically reduced, as in (a), or left unspecified with the sideward dislocation as the only movement of the sign, as in (b).

a. CHILD++ (reduced movement + dislocation)
'Children' (based on Bertone 2011, 99)

b. CHILD++ (dislocation only)
'Children' (based on Bertone 2011, 99)

Reduplication of one-handed signs like CHILD may be realised by both hands. As we can see below, all the phonological features of the sign can be copied onto the signer's non-dominant hand. The resulting sign is a two-handed sign in which the hands move symmetrically.

CHILD++ (two hands)
'Children' (based on Bertone 2011, 99)

Interestingly, to convey reduplication, the two hands can perform symmetrical movements or, in some cases, alternating movements. The noun TREE is a two-handed sign realised with both hands performing an upward path movement. Pluralisation can have two different realisations: the two hands can repeat the sign moving symmetrically, as in (a), or moving in an alternating fashion as independent articulators, as in (b).

a. TREE++ (symmetrical movement)
'Trees'

b. TREE++ (alternating movement)
'Trees'

3.3.2 Phonological effects of cliticisation and compounding

Cliticisation consists in the fusion of two words in a syntactic string. As a consequence of this phenomenon, coalescence can be observed [PHONOLOGY 3.1.2].

Differently from cliticisation, compounding is a word formation process that combines two stems [MORPHOLOGY 1]. An example of compound in LIS is the sign for parents (FATHER^MOTHER), which combines the stems FATHER and MOTHER.

a. FATHER

(Geraci 2009, 29)

b. MOTHER

(Geraci 2009, 29)

c. FATHER^MOTHER

'Parents' (Geraci 2009, 29)

Note that in some regions of Italy other variants of these signs may be used. If we compare the compound FATHER^MOTHER with the citation form of its two stems, we can observe some phonological differences. On the one hand, the signs FATHER (a) and MOTHER (b) exhibit a repeated path movement resulting in disyllabic signs. On the other hand, the two members of the compound (c) both lose their inherent repetition. As a result of compounding, deletion of phonological material is thus observed. This usually has an effect on duration in that the compound form tends to be shorter than the two input signs stringed together in a phrase. Another phonological effect of compounding is that the transitional movement from the handshape of the first stem to that of the second stem is reanalysed as the main movement of the compound.

For more details about the characteristics of compounds in LIS, the reader is referred to the relevant sections in the Morphology part [MORPHOLOGY 1].

3.4 Processes affecting higher prosodic units

This section presents some phonological processes affecting prosodic units larger than prosodic words. Specifically, we discuss issues related to the organisation of the signing space as well as differences in the whispered and shouted registers.

3.4.1 Organization of the signing space

The organisation of the signing space [PRAGMATICS 8] in LIS is highly connected with grammar. Indeed, some constructions capitalise on space to convey precise syntactic meanings. To illustrate, we discuss how three different linguistic phenomena affect the use of the signing space: involvement of multiple discourse referents [PRAGMATICS 1], subordination [SYNTAX 3.2], and contrastive focus [PRAGMATICS 4.1.3].

When two or more referents are involved in a signing production, they can be distinguished on the basis of the spatial locations they are associated with. In the LIS example below, the signer associates a location on the left side in space with the referent 'Maria' and a location on the right side in space with the referent 'Gianni'.

TODAY IX$_1$ MARIA$_a$ GIANNI$_b$ IX$_1$ $_1$MEET$_a$ $_1$MEET$_b$ DONE
'Today I met Maria and Gianni.'

In this example, the referent-location association is realised by leftward and rightward body lean, but it could also be signalled by pointing signs directed toward the relevant locations in space. The locations *a* and *b* are relevant to verb agreement: the inherently reciprocal verb MEET agrees with first person and the location on the left to express the meaning 'I meet Maria' and it agrees with first person and the location on the right to express the meaning 'I meet Gianni'.

Another linguistic context in which a larger spatial area is likely to be used is subordination. To illustrate, we consider a simple declarative sentence like (a) and a more complex sentence involving subordination like (b).

a. PIERO$_a$ CONTRACT SIGN
'Piero signed the contract.'

b. GIANNI$_a$ SAY PIERO$_b$ CONTRACT SIGN
'Gianni said that Piero signed the contract.'
(based on Geraci, Aristodemo 2016, 104)

To compare the two sentences in terms of use of space, we show below the spatial location of the referent signing the contract (PIERO) in each sentence.

a. PIERO$_a$ (subject of the matrix sentence)

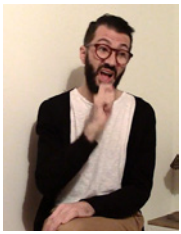
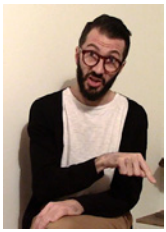
b. PIERO$_b$ (subject of the subordinated sentence)

In the declarative sentence (a), the sign PIERO is articulated in *a*, i.e. an ipsilateral point in space, the default location devoted to subjects in LIS. In the sentence involving subordination (b), this ipsilateral location is already occupied by the subject of the main clause (GIANNI), therefore it is not available to the subject of the subordinated clause PIERO. The clause embedded under the verb of saying requires additional space to accommodate the referent PIERO, which is then located in *b*, a point in the contralateral area.

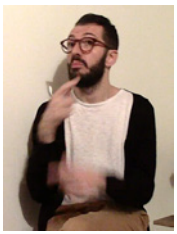
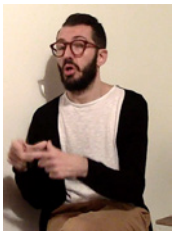
Contrastive focus is another syntactic construction in LIS that imposes a marked organisation of the signing space. Imagine that someone says that a kid likes tomatoes, but this is untrue according to someone else. A plausible remark containing contrastive focus is provided below.

NO. CARROT IX_a (IX_3) LIKE RED^SASS(curved open L): 'round'$_b$ (IX_3) LIKE.NOT
'No, he likes CARROTS, not tomatoes.'

To contrast the two types of referents involved (carrots and tomatoes), the signer is likely to locate them in two distant locations in space, *a* and *b*.

a. CARROT IX_a
'Carrots'

b. RED^SASS(curved open L): 'round'$_b$
'Tomatoes'

In this case, the sign CARROT is located in *a*, i.e. a contralateral point in space, through a pointing sign. In contrast, the compound sign RED^SASS(curved open L): 'round' [MORPHOLOGY 5.2] is localised in *b*, i.e. an ipsilateral point in space.

3.4.2 Differences in "loudness": Whispering and shouting mode

The use of the signing space may be affected by register as well. In particular, variation in signing can be observed depending on the identity of the addressee and the extra-linguistic context. In this section, we discuss two register types: whispering and shouting. The whispering mode is usually adopted when the signer communicates in close contact to the addressee and wishes to make the message less noticeable to other people. Conversely, the shouting mode takes place when the message is directed to someone far away and signing is evident and clear on purpose.

To illustrate register differences in LIS, we present the same content expressed in three different ways: spontaneously (a), in shouting mode (b), and in whispering mode (c), respectively.

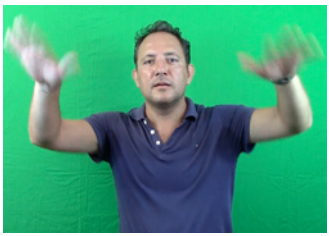
top
a. PRESIDENT ARRIVE LATE
'The president, he is coming late.' (spontaneous production)

re bl-b
b. attention_getter TODAY PRESIDENT ARRIVE LATE
'EXCUSE ME, THE PRESIDENT IS COMING LATE.' (shouting mode)

eg-shift
c. PRESIDENT ARRIVE LATE
'The president is coming late.' (whispering mode)

Shouting and whispering differ in many respects. In both cases, discourse usually begins by capturing the addressee's attention. Shouted signing directed to a general audience can be introduced by the following attention-getters: waving the hands from side to side, as in (a) below, or moving them quickly on the midsagittal plane back and forth, as in (b).

a. attention-getter signal (lateral plane)



b. attention-getter signal (midsagittal plane)

On the other hand, whispered discourse is directed to one addressee (or a few addressees) only. In order to hide the message from third parties, the addressee's attention is captured simply by establishing eye contact.

Establishment of eye contact (with someone on the left side)

While whispering, the signer does not necessarily have to maintain eye contact through the whole utterance. In fact, after the initial eye contact as attention-getter, the signer is likely to shift his/her gaze away from the addressee to make the message less noticeable.

The most remarkable difference between shouting and whispering is the extension of the signing space: the former makes use of larger space, the latter of smaller space. The two screenshots below show the same sign (LATE) articulated in the two registers: in shouting (a), the dominant hand is completely extended in the signing space in

front of the signer's torso; while in whispering (b), the dominant hand articulates the sign in a small area in front of the signer's lower torso.

a. LATE (shouting mode)

b. LATE (whispering mode)

Enlarging and shrinking the signing space can influence signing speed. Indeed, the articulation of larger signs generally takes more time than the articulation of smaller signs.

The different use of space is often associated with variations of the amplitude of motion [PHONOLOGY 3.1.3]. Typically, movements are proximalised in shouting and distalised in whispering. For example, let us consider the sign PRESIDENT, which is articulated with repeated wrist rotation in its citation form. In shouted discourse, this sign undergoes proximalisation, thus the movement is realised at the elbow joint (a), rather than wrist joint (b).

a. PRESIDENT (shouting mode)

b. PRESIDENT (whispering mode)

In shouted discourse, proximalisation is used to make the sign more evident and easily perceivable over distance.

Another difference in the manual articulation of signs is the more frequent use of one-handed versions in whispered discourse, as opposed to two-handed versions in shouted discourse. For example, the sign ARRIVE is a two-handed sign in LIS. This form is maintained in the shouting mode (a), while it is reduced by weak drop [PHONOLOGY 3.1.4] in the whispering mode (b).

a. ARRIVE (shouting mode)

b. ARRIVE (whispering mode)

The screenshots presented in this section show another important difference: typically, shouting involves vivid facial expressions, while whispering is associated with reduced non-manual behaviour. In some whispered productions, however, signers might decide to replace some manual signs with non-manual signals to reduce visibil-

ity. For instance, they might point toward a particular location with their eye-gaze or tip of the tongue, rather than using a manual pointing sign [PHONOLOGY 1.1.4].

Information on Data and Consultants

The descriptions in this chapter are based partially on the references below and partially on the elicitation of new data.
The linguistic data illustrated as images and video clips have been checked through acceptability judgments and have been reproduced by Deaf native-signing consultants.

Authorship Information

Lara Mantovan

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Part III
Lexicon

The present Part introduces the reader to the Lexicon of LIS.

The first Chapter [LEXICON 1] illustrates the signs, displaying fixed phonological patterns, shared by the community of signers. These signs belong to the native lexicon. The chapter follows the common distinction between core and non-core lexicon and describes the morphophonological properties of each category.

The second Chapter [LEXICON 2] explains the processes whereby signs belonging to other languages (signed or spoken) become part of the LIS lexicon. These forms belong to the non-native lexicon.

The last Chapter [LEXICON 3], which deals with parts of speech, offers a detailed description of the lexical and functional elements found in the LIS Lexicon.

1 The native lexicon

Summary 1.1 Core lexicon. – 1.2 Non-core lexicon. – 1.3 Interaction between core and non-core lexicon.

As for languages in general, the lexicon of LIS comprises both signs that have developed naturally among native signers, and forms deriving from processes of borrowing from other languages, which enter the system as a consequence of contact. Signs developed naturally, showing a regular phonological pattern and used by all the members of the community define the native lexicon, whereas signs deriving from the contact with other languages constitute the non-native lexicon, which will be explored in [LEXICON 2].

The present chapter deals with LIS native lexicon, exploring the main properties defining the signs belonging to this category. In the previous chapters, we have seen that signs result from the combination of specific phonological parameters, which constitute their sublexical structure [PHONOLOGY 1]. As in all languages, within the native lexicon we find signs which constitute the established lexicon in that they are manifestation of lexemes, and signs resulting from visually-motivated constructions or processes of lexicalisation. We refer to these two groups as core [LEXICON 1.1] and non-core lexicon [LEXICON 1.2], respectively. Often, these two groups overlap and undergo the same processes of lexicalisation and standardisation, but also of modification. The following sections will explore the signs belonging to the core and non-core lexicon of LIS.

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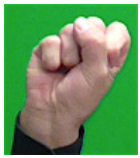
1.1 Core lexicon

The core lexicon includes all the signs listed in the mental lexicon of signers.

In general, signs belonging to this category display a lesser degree of iconicity, namely their meaning can be largely unrelated to form, and they are fixed, in that they do not display modifications of their phonological parameters, which are discrete and categorical. The only phonological modification they display is allophonic variation, referring to the possibility of employing two slightly different handshapes for the same sign, with no change in meaning. For instance, in some cases, handshape closed 5 with crossed thumb (a) might be used instead of closed 5 with adducted thumb (b).



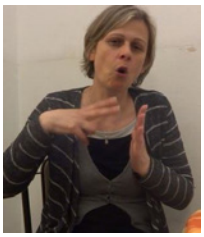
a. Closed 5 with crossed thumb

b. Closed 5 with adducted thumb

Signs belonging to the core lexicon are the result of formational processes starting from real-word observations, visual perception and linguistic knowledge, which combine the sign language-specific formational parameters and results in signs that can eventually become conventionalised, or being abandoned. Conventionalised signs are those found in their citation form within the language dictionary, used by all the members of the linguistic community. Therefore, to the core lexicon of LIS belong those signs whose sublexical structure is made up of the phonological parameters defining LIS phonology, which are: handshape, location, orientation and movement [PHONOLOGY 1].

Signs belonging to the core lexicon can be one- or two-handed signs, which are further divided between symmetrical (a) and asymmetrical signs (b) [PHONOLOGY 1.4].

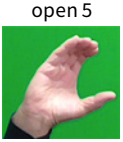
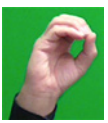
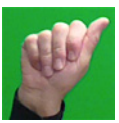
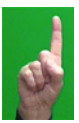
a. HOUSE



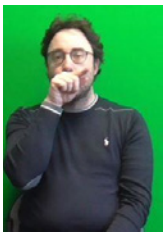
b. COLOUR

Symmetrical signs respect the Symmetry Condition, which states that if both hands move independently, they have to display the same handshape and location, the same or symmetrical orientation and the same or alternating movement. Asymmetrical signs, instead, are regulated by the Dominance Constraint, which states that if the hands have different handshapes, then one hand articulates the movement while the other one is passive and displays a handshape that belongs to a restricted set. The handshapes selected for the non-dominant hand in asymmetrical signs in LIS are reported below (see [PHONOLOGY 1.4.2] for further details).

Table 1 Non-dominant handshapes found in asymmetrical two-handed signs in LIS

5	unspread 5	unspread curved open 5	curved closed 5	closed 5	G
					

Core lexicon signs can also be classified considering their point of articulation: on the signer's body (a) or in the neutral space (b). The two classes of nouns, invariable and inflectional respectively, display different morphosyntactic properties (see [LEXICON 3.1] and [MORPHOLOGY 4] for further details]).



a. BIRD

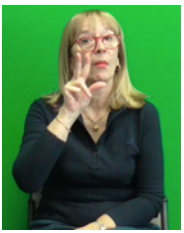
b. SHOE

The signs illustrated so far are simple signs. However, signs belonging to the core lexicon can also be compounds. We provide an illustrative example below (see [MORPHOLOGY 1] for further details).

SWEET^SASS(curved open L): 'round'
'Cake'

Signs belonging to the core lexicon display specific morphophonological and semantic properties, which distinguish them from non-core lexicon signs [LEXICON 1.2].

As already mentioned, core signs result from the combination of phonological units, i.e. the phonological parameters, which are discrete and categorical. In other words, each unit is used in an arbitrary and contrastive manner, as described in [PHONOLOGY 1]. It follows that a change in one feature leads to a change of meaning, thus creating a minimal pair. In minimal pairs, two signs share all the phonological parameters but one, resulting in two different signs with two different meanings. In the example below, the two signs differ only in their point of articulation: on the mouth for SPEAK (a), on the upper face for BE_FAMILIAR (b).



a. SPEAK

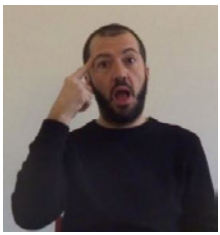
b. BE_FAMILIAR

Moreover, in core signs the use of space is arbitrary in that it does not represent the real space. In fact, movement and point of articulation are crucial for the realisation of nominal [MORPHOLOGY 4.1] and verbal agreement [MORPHOLOGY 3.1].

As far as meaning is concerned, in core lexicon signs are not directly understandable from their form in that meaning is non-compositional (i.e. the sublexical features forming the sign are discrete units and do not have a meaning on their own). Therefore, core lexicon signs are more arbitrary than non-core lexicon signs. In the majority of signs, there is no clear correspondence between the sign and the shape of the real entity.

Nevertheless, some LIS signs belonging to the core lexicon display a higher degree of iconicity because the selection of the handshape is visually motivated. Unspread 5 usually refers to flat closed surfac-

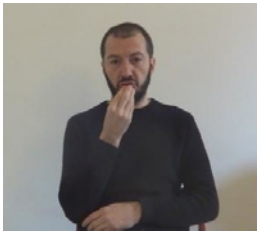
es. F handshape represents small round entities or the grabbing of a very light and thin object. Closed 5 indicates the grabbing of a bag or suitcase [MORPHOLOGY 5]. Another kind of iconicity is found in signs that display overt semantic relation with their point of articulation: signs articulated near the head generally denote objects that can be put on it (HAT), or refer to activities of the mind (THINK, UNDERSTAND, IDEA, REMEMBER), as we can see in the sign for IDEA.



IDEA

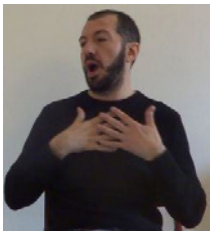
Signs articulated near the eyes, ears, mouth and nose belong to the semantic spheres of sight, hearing, speaking or eating and smelling. For instance, in the example (a) below the sign for NOISE is articulated near the ear, whereas we see in (b) that the sign EAT is articulated near the mouth.

a. NOISE

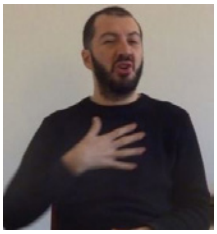


b. EAT

The same holds true for signs articulated near the signer's chest, which are usually connected with emotions and feelings.



a. LOVE



b. SATISFACTION

Signs belonging to the core lexicon undergo specific processes of transformation for ease of articulation, fluidity or historical/cultural changes (for instance, the old sign for 'telephone' has been substituted with the one for 'mobile phone', see [SOCIO-HISTORICAL BACKGROUND 4.4]. To illustrate, centralisation is a phonological process which consists in moving the articulation of signs, which were previously articulated in the corners of the visual plane, towards the centre of the signing space (in front of the signer's chest). The example in (a) shows the way in which the sign SHOE was articulated some time ago; example (b) shows the sign for SHOE as it is used today, displaying a different position for ease of articulation and perception (see [PHONOLOGY 3] for further details).

a. SHOE (old version)

b. SHOE (centralised)

Moreover, sociolinguistic studies analysing LIS lexicon have attested that it is characterised by a very rich variation, mainly due to geographical and age reasons. Specifically, older signers show a tenden-

cy to use more local variants than younger signers, who use the more standardised form of LIS, namely the one used in Rome. The standard variety is also more used by signers coming from central Italy rather than signers living in the north or south. The semantic domains of colour or month names are the ones showing lexical variation to a greater extent. Below we report some variants of the sign for JANUARY. Example (a) shows the most common variant form, (b) shows the variant form used in Brescia, whereas (c) is the one used in Rome.

a. JANUARY (standard)

b. JANUARY (Brescia)

c. JANUARY (Rome)

As for colours, we report here some variants of the sign YELLOW: example (a) shows the one used in Brescia, example (b) is the variant form used in Rome, example (c) reports the variant which is common in Bologna, and (d) shows the sign commonly used in Sicily.

a. YELLOW (Brescia)

b. YELLOW (Rome)

c. YELLOW (Bologna)

d. YELLOW (Sicily)

However, an ongoing process of standardisation seems to suggest that the variety of LIS used in Rome is considered the prestige variety, thus leading signers to conform to that and to consider it as the standard one [SOCIO-HISTORICAL BACKGROUND 4.4].

Manual signs belonging to the core lexicon can be completed with the articulation of mouth gestures displaying lexical, adverbial and syntactic functions [PHONOLOGY 1.5.1] or mouthings [PHONOLOGY 1.5.2], which are mainly employed to disambiguate homonyms and define neologisms.

1.2 Non-core lexicon

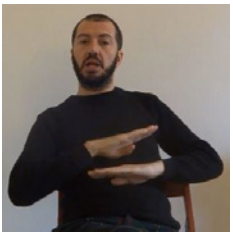
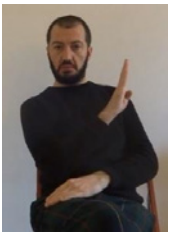
To the non-core lexicon belong signs which can be defined as being visually-motivated, in that they exploit the spatial properties of the three-dimensional space for the realisation of concepts. Therefore, they display a higher degree of iconicity despite being fully linguistic, and not gestural, elements. Considering that they usually convey much information simultaneously, they tend to be polymorphemic rather than monomorphemic constructions. Differently from core lexicon signs, which display a fixed form, non-core lexicon signs can be modified in their articulation in order to convey different meanings. The signs typically defining the non-core lexicon are classifier constructions, pointing signs, buoys and other signs whose origin is the result of visual metaphors such as metonymy and synecdoche (poetic devices using words not in their literal meaning but to refer to some other abstract concepts, discussed in [PRAGMATICS 9]). Being visually motivated, non-core lexicon signs exploit the signing space in an isomorphic and non-categorical manner in order to convey spatial descriptions.

Non-core lexicon in LIS is largely built on visual metaphors, in which iconic mapping focuses on semantic features that the source and the target domains share. Specifically, iconic features of sign language metaphors are the expressive manifestation of the blending process that occurs in the minds of the signer and the target. This kind of metaphors can occur both in formal and poetic registers, with a majority of occurrences in poetry. Being metaphors, in order to be understood interlocutors must have a comprehensive cultural knowledge of Deafness and Deaf culture. In LIS metaphors, vision plays a crucial role in that it is conceptualized as a complex tool for elaborating and transforming knowledge, and it is often found in metaphors related to mind and cognition. In general, LIS metaphors are grounded on visual and tactile experiences familiar to deaf people (see [PRAGMATICS 9] for further details).

1.2.1 Classifier constructions

Classifier constructions, as extensively explored in [MORPHOLOGY 5], are morphologically complex structures consisting of a handshape that can be associated to a movement to provide information about location and motion of referents. Classifier handshapes denote both animate and inanimate entities by depicting their external characteristics of size and shape, their semantic category, how they are

handled or manipulated. The handshapes functioning as classifiers in LIS are selected from the phonological inventory of LIS [PHONOLOGY 1.1]. Classifier constructions can exploit the signing space in an isomorphic manner in order to define spatial information about the referents they denote. In other words, they are used to locate referents as they are in the real word. We provide two examples below. In (a) the classifier conveys the position of one entity in space, whereas in (b) the two classifiers define the position of two entities simultaneously. Specifically, in (b) the non-dominant hand functions as point of reference and of location for the entity denoted by the dominant hand (the right one). The locative function is fulfilled by associating specific loci of the signing space, which correspond to loci in the real space, to the entities involved.

a. WINDOW CL(unspread 5): 'window_be_located'
'The window is there.'

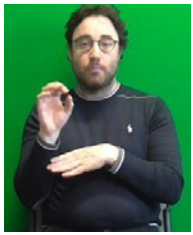
b. dom: CUP CL(F): 'cup_be_located'
n-dom: CL(unspread 5): 'table'
'The cup is on the table.'

In so doing, classifier constructions are visually motivated. However, it is important to stress that classifier constructions are not pantomime, rather, their use is regulated by linguistic constraints. Indeed, classifier handshapes combine with verbs of motion or location and the resulting predicate depends on the classifier handshape selected (see [SYNTAX 2.1.1.5] and [MORPHOLOGY 5.1] for details).

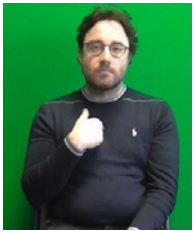
1.2.2 Pointing

Pointing signs are widespread in the LIS lexicon and occur in several contexts, with different morphosyntactic functions: as pronouns [LEXICON 3.7], determiners [LEXICON 3.6], demonstratives [SYNTAX 4.1.2], locative adverbials and agreement markers [LEXICON 3.3.4]. Even though they fulfil a wide range of functions, they have two properties in common: i) the handshape G, which can be oriented towards different directions, and ii) the fact that they associate specific points of the signing space (called *loci*) to the referents of the discourse, whatever the function they have in that specific context. Therefore, the signing space, namely the space around the signer in which signs are articulated, is crucial for the articulation of pointing signs. The signing space comprises both the signer's body and the space around her/him, in which signs are associated to loci more or less distant from the signer. The feature [+/- proximal] defines the signer [+ proximal], indicating a point on the signer's body), and the addressee [- proximal], indicating a locus of the signing space, in general in front of the signer). The feature [+/- distal] indicates a locus far from both the signer and the addressee, which is usually associated to the third person.

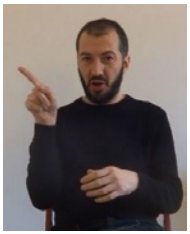
As we saw in the previous sections, the space can have both grammatical and topographic functions, depending on the way in which points of articulation are exploited: if they are associated to thematic roles or convey plurality, space has a grammatical function in that it allows the realisation of verbal and nominal agreement [MORPHOLOGY 3.1] and [MORPHOLOGY 4]; if loci are used to indicate the position of entities, space has a topographic function. The same holds for pointing signs: those functioning as pronouns, determiners and demonstratives associate grammatical features to the loci in space; those functioning as locative markers exploit the topographic nature of space. Below, we provide some examples of pointing signs used as determiner (a), personal pronoun (b-c), and locative marker (d).



a. TEACHER IX(def)$_a$
'The teacher'



b. IX$_1$
'I'



c. IX$_3$
'She/He'

d. dom: IX(loc)$_a$
n-dom: CL(L): 'corner'$_a$
'In the corner'

1.2.3 Buoys

LIS, as other sign languages, shows peculiar strategies to keep track of the referents during the discourse, thanks to its visual-gestural nature. Besides classifiers, LIS can also employ buoys [PRAGMATICS 2.2.3], constructions in which the non-dominant hand remains in a stationary configuration while the dominant hand continues to sign. Therefore, the two hands are used independently and articulate two different pieces of information simultaneously. In LIS, we find several kinds of buoys, which are explored in [PRAGMATICS 2.2.3]: list buoys, pointer buoys, theme buoys and fragment buoys.

Here we provide an example of list buoy, which can be used to describe a small set of referents through a list. In the example below, the signer introduces his three brothers by listing their jobs. Specifically, the non-dominant hand keeps track of the list ensuring a co-referential link to the discourse referents, which are introduced and described with the dominant hand.

IX_1 BROTHER THREE EXIST
dom: $IX_{[thumb]}$ LAWYER $IX_{[index]}$ DOCTOR $IX_{[middle]}$ TEACHER
n-dom: THREE----------
'I have three brothers, the first is a doctor, the second a lawyer, and the third a teacher.'

Within the discourse, the signer may refer back to one item of the list by pointing to the finger of the non-dominant hand which were previously associated to that referent.

1.3 Interaction between core and non-core lexicon

Even though it is important to distinguish between core and non-core lexicon, these two systems strongly interact in the LIS lexicon and within the discourse. Therefore, we often see processes of lexicalisation affecting the non-core lexicon to enter the core lexicon, and items from the core lexicon undergoing modification so that they behave like non-core lexicon.

1.3.1 Lexicalisation processes

Lexicalisation processes include those strategies leading to the creation of new signs starting from existing ones. The crucial point is that the semantic and formal properties of the final sign do not fully retrieve those of the constituent elements, because it has undergone a process of standardisation. These processes include compounding, conversion and derivational affixation. We provide an example for these and other strategies below.

Lexicalisation through compounding [MORPHOLOGY 1] is a process whereby a new sign is created by combining two already existing signs. Crucially, the meaning of the resulting compound is not directly derived from the meaning of the two components, namely it is non-compositional.

ELECTRICITY^CL(5): 'type'
'Computer' (recreated from Santoro 2018, 51)

Conversion is a lexicalisation process by which an existing lexical item is assigned to a different grammatical category without displaying changes in form. This is the case with some noun-verb pairs in LIS which are homophonous (or only slightly different). The only way to identify the category of the sign is to rely on the syntactic distribution. The unmarked order in LIS is SOV [SYNTAX 2.3], therefore in the example below we distinguish the noun TAILOR, in subject position, from the verb SEW, which follows the object CLOTHES.

TAILOR CLOTHES SEW CREATE
'The tailor sews and creates clothes.'

Derivation is a lexicalisation process which allows to derive a new lexical sign from an existing one by addition of an affix. Crucially, affixes in LIS, and in sign languages in general, are mostly simultaneous and consist of dedicated non-manual markers and/or manual modifications rather than manual sequential segments (see [MORPHOL-

OGY 2] for details). A very common process is the derivation of action verbs from object nouns. In LIS, this process can exploit morphological strategies such as the articulation of dedicated non-manual markers combined with the modification of the movement component of the sign. In the examples below, we see that the verb DRIVE (a) displays a longer movement with respect to the noun CAR (b), whose movement is shorter and restricted. Moreover, the verb occurs with the non-manuals lips protrusion (lp) and puffed cheeks (pc) which are usually found with verbs (see [LEXICON 3.1.1.] and [MORPHOLOGY 2.1.2.1.] for further details).

lp
pc
a. DRIVE

b. CAR

New signs can also be created *ad novo*. For instance, the sign for NETFLIX (a modern streaming service) was created after a discussion on Facebook among LIS native signers. Several signs were proposed and ultimately the one illustrated below, which resembles the first letter of the word 'Netflix', was chosen.

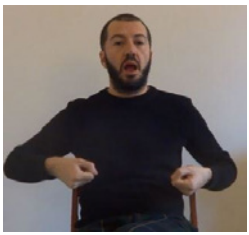
NETFLIX

Numbers also play a role in the formation of signs. For example, the sign WEEK (Ita. *settimana*), is a two-handed sign combining 5 and L handshapes, which taken together correspond to the number seven (Ita. *sette*). The combination of these two handshapes results in a new sign with independent meaning, i.e. 'week'.

WEEK
(based on Bertone 2011, 86)

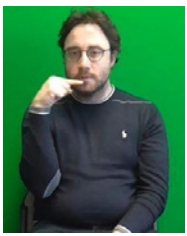
The aforementioned processes of lexicalisation can also involve signs belonging to the non-core lexicon.

Very productive is the process of conversion leading classifiers to become fully lexical signs. For instance, the sign for SUITCASE or BAG origins from the correspondent handling classifier displaying the closed 5 handshape. Now this very same handshape is the lexical sign for 'bag' or 'suitcase'. In the example below, the sign is two-handed because it refers to two suitcases.



dom: SUITCASE
n-dom: SUITCASE
'Two suitcases'

The G handshape has become the lexical sign for some objects with a narrow shape like KNIFE and TOOTHBRUSH.



TOOTHBRUSH

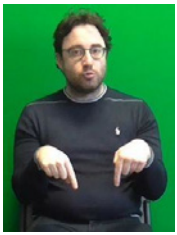
The same lexicalisation process of conversion can also affect pointing signs, which gain an independent meaning and become lexical signs. The most common process regards deictic pointing signs which are the lexical signs for NOSE (a), MOUTH (b), and EYES (c).

a. NOSE

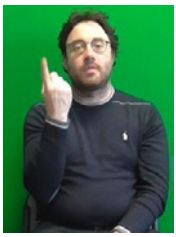
b. MOUTH

c. EYES
'Eyes'

The same happens for time adverbs such as TODAY (a), YESTERDAY (b), and TOMORROW (c).



a. TODAY



b. YESTERDAY

c. TOMORROW

The lexicalisation process affecting classifier constructions and pointing signs bring them to conform to the morpho-phonological requirements of the language, and the outcome is usually a monosyllabic sign, with an independent meaning.

Classifiers and pointing signs can also be involved in the formation of compounds. In (a) we show the sign for 'smart', which is formed by the sign HEAD (i.e. a lexicalised pointing sign), and the Y classifier handshape conveying the concept of a large amount; in (b) we provide the sign for SCHOOL, which consists of two meaningful parts: the sign WRITE and the entity classifier denoting a piece of paper. The two compounds are the result of a lexicalisation process in that the two classifier handshapes have lost their independent meaning, resulting in a single lexical unit with a stable and specific meaning.

a. HEAD^CL(Y): ‘a_lot’
‘Smart’ (recreated from Battaglia 2011, 198)

b. WRITE(h1)^CL(unspread 5): ‘paper’(h2)
‘School’

Buoys can undergo lexicalisation as well. Recall that buoys associate different referents with the fingers of the non-dominant hand, thus allowing to make lists (among other functions). This is reflected in the LIS signs HOW_MANY (a) and LAST (b), which most likely represent the lexicalisation of list buoys. These are illustrated below.

a. HOW_MANY

b. LAST

1.3.2 Modification of core lexicon signs

The previous paragraph has listed the processes, affecting both core and non-core signs, leading to lexicalisation, which implies i) non-compositional meaning; ii) a lesser degree of iconicity; iii) standardisation.

The present section, instead, concerns a different process affecting LIS lexicon that can be considered the reverse of lexicalisation. This is referred to as ‘delexicalisation’ and indicates the possibility for core-lexical signs to display modifications typical of non-core lexical signs, such as exploiting the topographic function of the signing space or being more visually-motivated. Since these mechanisms are widespread, it is important to identify them in order to isolate the citation form of the sign. We provide some explanatory examples of delexicalisation processes in LIS below.

The most common process of delexicalisation concerns the use of the signing space with a topographic function [PRAGMATICS 8.1.2]. Specifically, signs articulated in the neutral space can be displaced to convey information of localisation and spatial distribution. In so do-

ing, the signing space represents how entities are localised in the real word, thus the points of articulation of signs are isomorphic to the positions of the referents. In the example below, the signer displaces the sign BOX in order to convey the position of the three different boxes.

box_a box_b box_c
'A box on the right, one in the middle, and one on the left.'

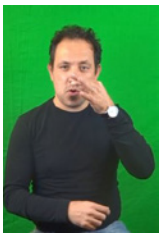
Core-lexical signs can also change to include specific information such as size and shape. As we can see in the examples below, the articulation of the sign TIE, provided in (a) in its citation form, can be modified to specify size, as illustrated in (b). Specifically, big size is conveyed by modifying the handshape and articulating specific non-manual markers consisting in furrowed eyebrows (fe) and teeth on the lower lip (tl). For further details see [MORPHOLOGY 2.2.1].

a. TIE (recreated from Petitta et al. 2015, 160)

tl
fe
b. TIE
'Big tie' (recreated from Petitta et al. 2015, 160)

Name signs [LEXICON 3.1.2] are a special kind of delexicalisation since the lexical signs selected as name signs are devoid of their semantic content to become proper names identifying specific individuals

(or classes of individuals) rather than classes of entities. One very common example in LIS is the sign for FLOWER, which often becomes the name sign of women called *Margherita* 'daisy', thus referring to a specific individual rather than a flower.



MARGHERITA

One further process of delexicalisation is the metaphorical use of core-lexical signs, typically found in poetry and narrative. In such instances, the meaning of the sign is extended to more abstract interpretations. The example in (a) below is an excerpt of the poetry *Grazie* 'Thanks' by Rosaria and Giuseppe Giuranna (2002). The sign PERCEIVE is signed higher, in correspondence of the forehead (a), rather than in front of the signer's eyes as in its citation form (b), to convey the meaning 'to perceive with mind's eyes'. In so doing, the metaphor maps the domains of vision and cognition, which are often related in LIS metaphors. Sign language metaphors build on the shared cultural and linguistic knowledge of the Italian Deaf community. The reader is referred to [SOCIO-HISTORICAL BACKGROUND 2.3] for details about metaphors in poetry and narrative.

a. $\text{PERCEIVE}_{[\text{high}]}$
'To perceive with mind's eyes' (recreated from Giuranna & Giuranna 2002, *Grazie*)

b. PERCEIVE (citation form)

It is important to distinguish the instances above from core lexical signs whose meaning originates from a metaphor [LEXICON 1.3.1]. For instance, in LIS we find many signs originating from the metaphor of the mind as a container. For this reason, signs referring to the domain of cognition such as KNOW, UNDERSTAND, IGNORANT, FORGET, LEARN are signed near or on the forehead. We provide an example below for clarity.

UNDERSTAND

1.3.3 Simultaneous constructions and use of the non-dominant hand

As we have seen in [PHONOLOGY 1.4] and [LEXICON 1.1], signs belonging to the core lexicon of LIS can be one- or two-handed. As far as two-handed signs are concerned, some of them are the result of lexicalisation [LEXICON 1.3.1] or simultaneous compounding [MORPHOLOGY 1.1.2]. We provide an illustrative example below.

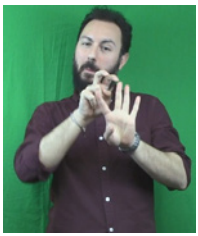
TEA

As we can see in the example above, the sign for TEA is the combination of two entity classifiers: the non-dominant hand (right hand) represents the cup, whereas the dominant hand (left hand) encodes a handle classifier indicating the dipping of the tea bag. The meaning of this two-handed sign is not 'dipping a tea bag into the cup'. This is because this simultaneous construction is lexicalised, and the final meaning 'tea' is derived from the combination of the two parts.

However, these signs must be distinguished from other simultaneous two-handed constructions, which are active in LIS beyond the lexicon. Specifically, in these constructions the two hands encode two different referents or fulfil two different syntactic functions. We discuss these constructions below.

One very typical kind of simultaneous construction involves classifier handshapes. Specifically, we consider to classifier predicates [MORPHOLOGY 5], which refer to different entities simultaneously providing information about their motion or location within the signing space. Example (a) below shows a complex simultaneous construction in which the dominant (right hand) and non-dominant hand (left hand) refer to two different entities (a child and a fence, respectively) and the non-manual markers convey information about the way in which the action of climbing over the fence is happening, namely 'with difficulty'. The movement applied to the dominant hand shows how the child moves to climb over the fence. In (b), instead, the two hands encode the location of two different entities, a lamp (right hand) and a library (left hand). The position of the hands in space indicates that

the two entities are positioned closed to each other. Here, non-manuals (squinted eyes 'sq' and wrinkled nose 'wrn') convey proximity of the two entities [MORPHOLOGY 2.2.3].



sq
tp
a. dom: CL(curved open V): 'person_climb_over'
n-dom: CL(4): 'fence_be_located'
'(The child) climbs over the fence with difficulty.'

sq
wrn
b. dom: CL(G): 'lamp_be_located'
n-dom: CL(unspread 5): 'bookcase_be_located'
'The lamp is next to the bookcase.'

Another very common process concerns the possibility of using the two articulators independently, similarly to what happens in buoys [LEXICON 1.2.3]. In these constructions, the non-dominant hand maintains the referent in the background, while the dominant hand keeps signing. In the example below, the non-dominant hand (left hand) maintains the sign BRICK, while the dominant hand (right hand) articulates the verb SEE. Despite the simultaneity with which the two signs are articulated, the resulting construction is not a two-handed lexical sign, but rather a complex simultaneous construction.

dom: SEE
n-dom: BRICK
'The brick is visible.'

Other illustrative examples of simultaneous two-handed non-lexical constructions are cases in which the two manual articulators encode two different syntactic functions [SYNTAX 4.1.1.2]. In the example below, the noun and its modifiers are expressed by the dominant hand, whereas the definite article is simultaneously expressed by the non-dominant hand.

re sq rs: child
dom: CHILD_a HAIR BLACK WALK DAD GO
n-dom: IX_a---------- WALK
'The kid with black hair left whining and went to his dad.'

Information on Data and Consultants

The descriptions in this chapter are based on the references below. For information on data and consultants see the references. The video clips and images exemplifying the linguistic data have been produced by LIS native signers involved in the SIGN-HUB Project.

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Elena Fornasiero

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2 The non-native lexicon

Summary 2.1 Borrowings from other sign languages. – 2.2 Borrowings from (neighboring) spoken language. – 2.3 Borrowings from conventionalised gestures.

The present chapter describes the part of the LIS lexicon which derives from the contact with other languages, both signed and spoken. The lexical entries belonging to this set of signs, generally known as non-native lexicon, did not develop naturally within the community of LIS signers and thus can be regarded as borrowed forms.

This chapter provides illustrative examples of borrowings from other sign languages [LEXICON 2.1] and from surrounding spoken languages [LEXICON 2.2]. The most common sources of loan forms in LIS are Italian, the dominant spoken language used in Italy, and ASL, the most influential sign language in the world.

2.1 Borrowings from other sign languages

Increased mobility and social interaction with Deaf people from other countries have created opportunities for LIS signers to get in contact with other sign languages. These circumstances have led to contact phenomena such as lexical borrowings. Borrowed signs from other sign languages typically belong to two categories: toponyms and name signs.

Toponyms are geographical proper names used to denote countries, towns, rivers, mountains, etc. In LIS, the signs referring to ge-

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ographical locations outside Italy are frequently borrowed from the sign language used in those locations. For example, the sign RUSSIA is borrowed from Russian Sign Language (RSL).

RUSSIA

For some foreign locations, LIS used to have native toponyms that over the years have been substituted by the signs used by the signing community of those locations. This is the case for the sign AMERICA. In the past, LIS signers used the native sign shown below: the forward arched movement reflected the fact that this is an oversea country.

AMERICA (native form)
(recreated from Volterra et al. 2019, 174)

Although this sign is still used by some LIS signers, especially the older ones, nowadays signers prefer the sign borrowed from ASL. It is interesting to note that in the source language the sign AMERICA is produced with a circular movement in the horizontal plane (a), whereas in LIS it is articulated with a circular movement in the vertical plane (b).

a. AMERICA (ASL)
(recreated from Volterra et al. 2019, 174)

b. AMERICA (LIS)
(recreated from Volterra et al. 2019, 174)

Other borrowings are name signs referring to internationally famous people (e.g. politicians, historical figures, athletes) and leading figures in the global Deaf community. The source language is the sign language in which the name sign was first used. For example, LIS signers adopt the respective name signs in ASL to refer to Thomas Hopkins Gallaudet (a) and William C. Stokoe Jr. (b), two important American figures in Deaf history.

a. GALLAUDET

b. STOKOE

Interestingly, in the LIS non-native lexicon we also find signs borrowed from other sign languages that entered the lexicon to intro-

duce a new meaning, as in the case of WORKSHOP (a) or to replace already existing signs in the target language, as in the case of GAY (b).

a. WORKSHOP

b. GAY

An interesting phonological phenomenon that sometimes can be observed in borrowings is nativisation [PHONOLOGY 3.1.6], namely the adaptation to the phonological inventory and constraints of the target language. This phonological process can be observed in the borrowed sign WORKSHOP, shown above. Originally produced with handshape W in ASL, WORKSHOP is often articulated with handshape 4 by LIS signers. This adaptation is motivated by the absence of handshape W in the phonemic inventory of LIS.

2.2 Borrowings from (neighboring) spoken language

As similarly observed in other countries, signers in Italy are frequently bimodal bilingual individuals: they use a sign language (i.e. LIS) and they also manage a spoken language (i.e. Italian) to some degree. Because of the bilingual skills in the signing community and the frequent interactions between signers and speakers, language contact phenomena between LIS and Italian are not infrequent. Being LIS a minority language, cross-modality influences mostly occur from Italian to LIS.

This section illustrates the various forms of borrowing that can derive from the contact with the dominant spoken language: calques [LEXICON 2.2.1], lexicalisation of fingerspelling [LEXICON 2.2.2], mouthing [LEXICON 2.2.3], and other marginal types of borrowing [LEXICON 2.2.4].

2.2.1 Calques

A calque consists in a part-by-part translation of a complex form. Calques represent a peculiar contact phenomenon in that they make use of linguistic elements of the target language while imitating structures or functional properties of the source language.

In LIS, we find calques in the lexicon as well as in idiomatic expressions. To illustrate, examples of lexical calques are the toponyms TREVISO and CAMPOBASSO. Both words *Treviso* and *Campobasso* can be split into two parts: *tre* + *viso* ('three' + 'face') and *campo* + *bas-*

so ('field' + 'low'). The meaning of both parts is somehow reflected in the articulation of these toponyms: the sign TREVISO is articulated with handshape 3 in front of the signer's face (a), while the sign CAMPOBASSO results from the sequential combination of a flat surface followed by the sign LOW (b).

a. TREVISO

b. CAMPOBASSO

The LIS equivalents of Italian idiomatic expressions sometimes result in phraseological calques, which means that the expressions of the source language are literally translated word by word. For example, the Italian idiom *lavarsene le mani* ('to wash one's hands', meaning taking no responsibility for something) is literally translated into LIS as the predicate WASH_HAND.

WASH_HAND
'(To) wash one's hands'

The LIS idiom TAKE_NOSE^AROUND is an interesting case of complex phraseological calque, since it derives from two different Italian idiomatic expressions with similar meaning: *prendere per il naso* ('lead somebody by the nose', lit. 'take by the nose') and *prendere in giro* ('make fun of somebody', lit. 'take in around').

TAKE_NOSE^AROUND
'(To) lead somebody by the nose/make fun of somebody'

2.2.2 Lexicalisation of fingerspelling

To represent the orthography of the spoken languages, sign languages typically resort to the manual alphabet [PHONOLOGY 1.1.3], commonly known as fingerspelling. The first manual alphabet used in Italy was invented by the clergyman Ottavio Assarotti in Genoa at the beginning of the 19th century. In this alphabet, some letters were realised with the dominant hand only, others required both hands. Moreover, some letters were articulated on body locations, such as on the mouth or close to the eye, while others were produced in the neutral space. This alphabet was used in several education programs for deaf pupils across the country. It even spread to hearing children who learnt it at school as a game and referred to it as *alfabeto muto* ('mute alphabet').

In the Seventies, young LIS signers started to use a different type of fingerspelling, influenced by the international manual alphabet (i.e. the manual alphabet adopted by the World Federation of the Deaf for use at its meetings and events). Even if a few letters were slightly modified from the international version, this new system as a whole can be considered a borrowing from foreign sign languages. The new manual alphabet quickly spread throughout the Italian signing community so much that nowadays most of the signers use it. Only some older signers still stick to the old manual alphabet. Differently from the old one, the new manual alphabet is entirely produced with the dominant hand and does not involve any body location. Because of these features, it is quicker and more efficient to use. The table below shows the new manual alphabet, currently used in Italy.

Table 1 The new manual alphabet used by the Italian signing community

A	B	C	D	E	F	G
H	**I**	**J**	**K**	**L**	**M**	**N**
O	**P**	**Q**	**R**	**S**	**T**	**U**
V	**W**	**X**	**Y**	**Z**		

Most of the letters are reproduced in a static way. A few letters, those accompanied by a yellow arrow in the table, are optionally produced with a movement: R can be articulated with a slight wrist rotation (from prone to supine) and S can be accompanied by a slight contralateral movement. These optional movements usually disappear in fully fingerspelled words. The letters represented with a red arrow must display movement: G requires wrist pivoting (from radial to ulnar), J requires wrist rotation (from prone to supine), and Z must be articulated with a zig-zagging motion resembling the shape of the letter. When used in signed interaction, fingerspelling clear-

ly represents a form of borrowing from spoken languages. It enters the non-native lexicon of LIS in different ways, described below.

First, there are few short words that are systematically conveyed by fingerspelling. Letters are joint by a short path movement and the borrowing, as a whole, is a form of lexicalisation. Two common examples are the sign O-K, which is borrowed from written English, and N-O, a negative sign typically used to express prohibition.

a. O-K

b. N-O

As shown in (b) above, letters could be slightly modified in handshape and orientation for ease of articulation.

Second, LIS signers may resort to one-by-one fingerspelling, which consists in reproducing each letter of a word with the corresponding fingerspelled form. Letters are reproduced one after the other in a certain location of the signing space, namely in the ipsilateral side at chin level. In the example below, the proper noun Federico is reproduced by full fingerspelling.

F-E-D-E-R-I-C-O

One-by-one fingerspelling is employed to express concepts that do not have a corresponding sign in LIS (or one is not known). This strategy is mostly, but not exclusively, used with proper nouns referring to individuals, toponyms, brand names, and neologisms [LEXICON 3.1.2].

After a word is provided with one-by-one fingerspelling, it can be repeated in the discourse by producing a so-called single-letter sign: this form, articulated in the neutral space, selects the handshape associated with the first letter and combines it with a default motion, be it a short circular movement or a repeated horizontal movement. Single-letter signs represent an economic strategy since they are quicker than fully fingerspelled forms. In the example below, we can see how this process applies to the proper noun Federico, previously introduced with one-by-one fingerspelling.

FEDERICO

It is important to highlight that single-letter signs are limited to particular discourse contexts and are not conventionalised in LIS lexicon. For these reasons, this linguistic phenomenon is sometimes re-

ferred to as *local lexicalisation*. In order to be intelligible, single-letter signs are accompanied by full mouthing [LEXICON 2.2.3.1].

Another way to integrate fingerspelling in signed discourse is initialisation. This phenomenon occurs when the handshape of a sign represents the first letter of the corresponding spoken word. Differently from single-letter signs, initialised signs are conventionalised signs characterised by a defined movement and a defined location. An example of initialised sign in LIS is LAW. As shown in the figure below, the dominant hand is articulated with handshape L corresponding to the first letter of the corresponding Italian word (*legge*, 'law') on the non-dominant hand.

LAW

For more details on initialisation, the reader is referred to [LEXICON 2.2.2.1].

In some cases, more than one letter from the corresponding spoken word is selected. These are known as multiple-letter signs. To illustrate, the toponym BARI is articulated with two different handshapes: B followed by I, the first and the last letters of the corresponding spoken word.

BARI

Various subtypes of multiple-letter signs are found in LIS. For more details, the reader is referred to [LEXICON 2.2.2.2].

The last type of borrowed form involving fingerspelling is a complex form in which fingerspelling is followed by a lexical sign. This combination can be observed in the sign for the Italian region Lombardy: it is composed by the first letter of the corresponding spoken word (*Lombardia*) and the sign AREA articulated in the vertical plane.

L^AREA
'Lombardy'

This type of sign formation is quite productive in the category of Italian regions.

2.2.2.1 Initialisation

Initialised signs display a fingerspelling handshape representing the first letter of the corresponding Italian word. There are quite a few initialised signs in the LIS lexicon, especially in two categories: days of the week and toponyms. For instance, the sign MONDAY (Ita. *lunedì*) is realised with handshape L (a) and the sign for the Italian city Vicenza is realised with handshape V (b).

a. MONDAY

b. VICENZA

Frequent handshapes used in initialised signs in LIS are V, L, C, and D.

It is interesting to note that some initialised signs employ handshapes from the old manual alphabet [LEXICON 2.2.2]. For example, we can find the old handshape T in a variant form of the sign TAXI.

TAXI

As an effect of diachronic change, old fingerspelled handshapes in initialised signs tend to be replaced by the corresponding new fingerspelled handshapes. For instance, the sign for Sunday (Ita. *domenica*) used to be articulated with the old D handshape, while nowadays the same sign is preferably produced with the new D handshape.

a. SUNDAY (old sign)
(recreated from Radutzky 2009, 33)

b. SUNDAY (new sign)
(recreated from Radutzky 2009, 33)

Most of initialised signs in LIS select the handshape corresponding to the first letter of the corresponding Italian word. However, there are a few special cases in which the handshape of the sign reproduces another letter, different from the first one. The signs WEDNESDAY (Ita. *mercoledì*) and EX (Ita. *ex*) are such cases. As for

WEDNESDAY, the handshape reproduces the second letter of the Italian equivalent (E).

WEDNESDAY

The peculiar choice of reproducing a non-first letter is well motivated. On the one hand, the sign for Wednesday needs to overcome a conflict with another day of the week. The initialised signs TUESDAY and WEDNESDAY, both derived by Italian words starting with M (*martedì* and *mercoledì*, respectively), need to select different letters to avoid possible misunderstandings: so, Tuesday reproduces the first letter of the Italian equivalent (M), while WEDNESDAY reproduces the second one (E). For ease of comparison, the sign TUESDAY is provided below.

TUESDAY

The sign EX is another special case because it is articulated with the old handshape X, corresponding to the second (and last) letter of the Italian equivalent.

EX

The selection of X is probably motivated by the choice to highlight the letter with the highest visual impact.

2.2.2.2 Multiple-letter signs

Multiple-letter signs are conventionalised signs derived from fingerspelling in which more than one letter is reproduced. In this category, in LIS, we usually observe two-letter signs.

An example is the sign LIS itself. It was originally realised as a full fingerspelled form of the acronym (L-I-S), as in (a), but over the years it has changed to a two-letter sign including only the first and the last letters (L-S), as in (b).

a. LIS (old sign)

b. LIS (new sign)

There is also a case of multiple-letter sign realised with the old manual alphabet [LEXICON 2.2.2], that is the sign for the Sicilian city Enna. It combines the first and second letters: old handshape E and old handshape N (which is identical to the N handshape of the new manual alphabet).

ENNA

Multiple-letter signs are also used for multiword expressions. In the examples below, we show two-letter signs derived from non-Italian expressions: *bed and breakfast* and *curriculum vitae*.

a. BED_AND_BREAKFAST

b. CURRICULUM_VITAE

In both cases, the selected handshapes refer to the first letter of each relevant word: B-B for *Bed and Breakfast* and C-V for *Curriculum Vitae*.

Most of the multiple-letter signs in LIS display the handshapes in a sequential way. However, in some very rare cases, handshapes can be produced simultaneously. For example, the sign YES (Ita. *sì*) is realised with handshape Y, which combines the two handshapes included in the Italian equivalent: S (extended thumb) and I (extended pinky).

YES

Certain fingerspelled signs may undergo a process of phonological reduction. This phenomenon can be observed in the toponym used to refer to the Italian city Lecce, which is a two-letter sign composed by L followed by bent L. The latter handshape looks as a reduced version of handshape E (the second letter of the corresponding word), which is conventionally articulated by bending all fingers.

LECCE

2.2.3 Mouthing

The articulation of LIS signs is frequently simultaneously combined with mouthing, i.e. mouth movements that voicelessly reproduce the full or partial articulation of the corresponding Italian word. The significant use of mouthings in LIS is probably due to the strong oralist tradition in Italian deaf education [SOCIO-HISTORICAL BACKGROUND 1]. From a functional perspective, mouthing represents a form of co-sign gesture (similar to co-speech gestures in spoken languages) and enhances intelligibility.

The relevant section in the Phonology Chapter [PHONOLOGY 1.5.2] describes the phonological role of mouthing and its relationship with the associated manual sign. In this section, the focus is on the role of mouthing as part of LIS non-native lexicon. Indeed, it represents a clear case of borrowing from spoken Italian. Since the linguistic competence in Italian is not homogeneous among the signing community, the use of mouthings shows a great degree of variation across signers. Generally speaking, mouthing tends to reproduce: i) high-frequency words, ii) lexical words (rather than functional words), iii) more frequently nouns and adjectives and less frequently verbs.

The extension of mouthing is usually dependent on the duration of the associated manual sign. To illustrate, the sign STREET (Ita. *strada*) and the corresponding mouthing are articulated at the same time.

‘strada’
STREET

In some cases, we can observe a prolonged articulation in correspondence with a particular Italian phoneme. In the example below, the sign LONG_LASTING (Ita. *lungo*) is articulated with a prolonged movement and the associated mouthing is typically characterized by the prolonged articulation of the vowel [u].

[luuuuuuŋgo]
LONG_LASTING

This lengthening in the mouthing component matches the timing of the hand movement.

In signed discourse, we often observe the spreading of the mouthing of a single Italian word over more than one sign. This is shown in the two examples below: in the first one, the mouthing corresponding to BOOK (Ita. *libro*) spreads over both BOOK and the verb CL(flat open 5): ‘give_book’; in the second one, the mouthing usually associated with COFFEE (Ita. *caffè*) spreads over the entire interrogative clause.

‘libro’
a. BOOK $_1$CL(flat open 5): ‘give_book’$_2$
‘I give you the book.’

‘caffè’
y/n
b. COFFEE WANT IX$_2$
‘Do you want coffee?’

As we can observe in the examples above, the use of mouthings is constrained by the articulation of signs and deviates from the combinatory rules typical of Italian. An exception to this generalisation is represented by a few phraseological routines. These are high-frequency Italian constructions usually containing functional elements such as negation that are faithfully reproduced in a string of mouthings despite the different ordering of the co-articulated manual signs. The example below shows a mismatch between sign order and mouthing order: as required by LIS syntax, the negative predicate EXIST.NOT follows the noun PROBLEM, whereas the negative mouthing ‘non c’è’ (Eng. ‘there is not’) precedes the noun mouthing ‘problema’ (Eng. ‘problem’), as required by Italian syntax.

‘non c’è problema’
neg
PROBLEM EXIST.NOT
‘There is no problem.’

2.2.3.1 Full forms

When the mouthing reproduces the corresponding Italian word in its entirety, it is classified as full form. Full mouthings may be redundant in that they express the same meaning of the associated manual signs, or they may be used to disambiguate the meaning of homonyms (i.e. signs with identical manual forms but different meanings) [PHONOLOGY 1.5.2].

Full mouthings are usually found in combination with nouns, such as NAME (‘nome’), DOCTOR (‘dottore’), and HOUSE (‘casa’).

‘nome’
NAME

However, they can also co-occur with other word classes. We find full mouthings in combination with adverbials, such as YESTERDAY (‘ieri’) (a), NEVER (‘mai’), and WELL (‘bene’), as well as with adjectives, such as GOOD (‘buono’) (b), NEW (‘nuovo’), and BEAUTIFUL (‘bello’).

a. ‘ieri’
YESTERDAY

b. ‘buono’
GOOD

2.2.3.2 Reduced forms

When the mouthing reproduces a part of the corresponding Italian word, it is classified as reduced form. As mouthing shows a high degree of variation among signers, it is not possible to identify rules determining how the word should be exactly reduced. However, some general tendencies can be observed. In most cases, reduced forms preserve: i) the initial part of the word, ii) the visually most salient phonemes.

Truncation tends to occur right after the tonic syllable of the word. A couple of examples are provided below: FINISHED (Ita. *finìto*) (a) and WORK (Ita. *lavòro*) (b).

[fini]
a. FINISHED

[lavo]
b. WORK

Sometimes, truncation occurs after an atonic syllable, so the tonic syllable is deleted. This can be observed, for example, in the sign WHY, which is typically accompanied by the partial mouthing [mo], which results from the truncation of the Italian word *motìvo* ('reason') occurring before the tonic syllable [tì].

[mo]
wh
WHY

In a few instances, the reduced form is limited to the articulation of the only tonic syllable in word-internal position. For example, the sign IDENTICAL (Ita. *uguàle*) is commonly accompanied by the reduced form [gua], corresponding to the tonic syllable.

[gua]
IDENTICAL

When reduced forms are used, they typically extend over one manual sign only. So, spreading phenomena over more than one sign are generally not observed.

2.2.3.3 Mouthing and fingerspelling

To be developed.

2.2.4 Other marginal types of borrowing

In the category of borrowing from spoken languages, further idiosyncratic cases of borrowing are worth a mention.

First, the shape of a written letter can be reproduced by a body part to form a so-called *word picture*. An example of this phenomenon is the sign DVD, which is found in other sign languages as well and probably represents a borrowed form.

DVD

In this sign, all the three letters of the English acronym are represented: the initial and final Ds are shown by the D handshape articulated by the dominant and non-dominant hands, while the letter V can be observed in the intersection created by crossing the forearms.

Second, a few borrowings are derived from mistranslations. This is the case when two phonologically similar or identical forms in the spoken language are translated by a single sign despite being semantically unrelated. For example, the acronym CONI (*Comitato Olimpico Nazionale Italiano*, 'Italian National Olympic Committee') is phonologically identical to the Italian word *coni* ('ice cream cones'). Although the two meanings are not related, CONI is often translated into LIS by using the same sign for 'ice cream'.

CONI
(recreated from Volterra et al. 2019, 179)

Another similar case of borrowing derived from phonological similarity of forms in the spoken language can be observed in a variant form of KINDERGARTEN. This symmetrical two-handed sign is articulated by flattening index and middle fingers (unspread V handshape) close to the temples.

KINDERGARTEN
(based on Bertone 2011, 87)

From a phonological perspective, KINDERGARTEN is very similar to the sign DONKEY, with the only difference that the latter sign selects unspread 5 handshape (rather than unspread V handshape). The similarity between KINDERGARTEN and DONKEY reflects the similarity between the Italian corresponding words: *asilo* ('kindergarten') and *asino* ('donkey'). These two words are semantically unrelated, but they look very similar when lip read.

Finally, we find some idiosyncratic forms of borrowing derived from speech therapy practice. These signs reproduce the strategy that therapists used to rely on to teach deaf children how to pronounce particular phonemes of spoken Italian. For example, an old variant of GRANDFATHER (Ita. *nonno*) is realised by pressing the ipsilateral nostril with the index finger. Such strategy was used to teach the pronunciation of the nasal [n] since it allows to perceive the resonance of this phoneme through touch.

GRANDFATHER

Another borrowing derived from speech therapy is the sign AUNT (Ita. *zia*), which is realised by brushing the radial side of the index finger under the chin. Such strategy was used to teach the pronunciation of the alveolar affricate [dz] since it allows to feel the vibration produced by this phoneme.

AUNT

The sign is usually accompanied by visible teeth, which is the mouth configuration that can be observed while pronouncing [dz].

2.3 Borrowings from conventionalised gestures

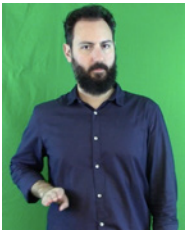
It is well known that when Italian people communicate, they usually move their hands a lot: specifically, they produce co-speech gestures to add emphasis, express emotions, or clarify what they are saying. Gestures are used throughout the country, especially in the Southern regions. Due to the everyday interactions between hearing and deaf people, some of these gestures have become conventionalised in LIS to the point that they are systematically used by the signing community. For example, the Italian culture-specific gesture meaning 'fear' or 'be afraid of' is integrated in LIS lexicon as a sign.

FEAR

Signs derived from gestures can be considered borrowed forms and are thus part of the LIS non-native lexicon. Two distinct linguistic processes may be involved, depending on the function assumed by the borrowed form: lexicalisation and grammaticalisation. If the gesture undergoes lexicalisation, it enters the lexicon as a content item (i.e. lexical unit). On the other hand, if a gesture is grammaticalized, it is used to fulfil a grammatical function. These two processes are further explained and exemplified in [LEXICON 2.3.1] and [LEXICON 2.3.2].

2.3.1 Lexical functions

The borrowed gestures that have entered the LIS lexicon as lexical items can belong to different lexical categories. To illustrate, the examples below show the noun HUNGER (a), the verb CARE_NOT (b), and the adjective DELICIOUS (c).

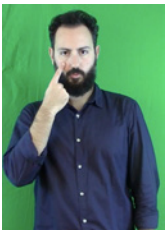


a. HUNGER

b. CARE_NOT
'Don't care'

c. DELICIOUS

Being originated from gestures, these three signs are fully recognisable by Italian non-signers as well. Crucially, as signs, they are integrated in the LIS structure and are used compositionally (i.e. their meaning contributes to the interpretation of the sentence). As a final note, there are quite a few LIS signs derived from a universal gesture, namely the deictic pointing gesture. This is used on a worldwide scale to refer to contextually relevant entities, and it is one of the main gestures produced by babies. Some of these deictic pointing gestures, especially those referring to body parts, have become so conventionalised in signing interactions as to enter the LIS lexicon. For example, signs originated from pointing gestures are EYE (pointing to eye) and RED (pointing to lips).



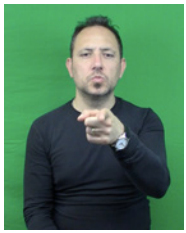
a. EYE

b. RED

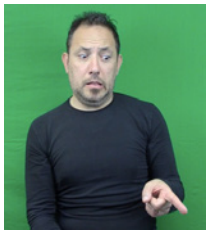
2.3.2 Grammatical functions

The borrowed gestures that have entered the LIS lexicon to fulfil grammatical functions are articulated either manually or non-manually.

As for manual forms, consider again deictic pointing gestures. Some have been grammaticalized and are used with different pronominal functions: as personal pronouns (a), demonstrative pronouns (b), and locative pronouns (c).



a. IX$_2$
'You'



b. IX(dem)$_{[proximal]}$
'This (one)'

c. IX(loc)$_{[proximal]}$
'Here'

For more details on these pronominal forms, see the relevant description in [LEXICON 3.7].

One of the most popular Italian gestures is articulated in front of the signer's body with flat closed 5 handshape. It may be static or articulated with repeated wrist nodding (from palm to back). This gesture is typically used to express lack of understanding (if accompanied by neutral facial expressions) or disapproval (if accompanied by furrowed eyebrows). In the former interpretation, it may accompany interrogative pronouns such as *cosa*, 'what'. In the latter interpretation, it may accompany Italian sentences such as *cosa vuoi?!*, 'what do you want?!' or *cosa stai dicendo?!*, 'what are you talking

about?!'. This gesture has been grammaticalized to the point that it is now used by LIS signers as a regular *wh*- sign, commonly glossed as $\text{Q}_{\text{artichoke}}$ [LEXICON 3.7.5].

$\text{Q}_{\text{artichoke}}$
'Who/what/where/how/why/when/which'

In LIS, this sign is used as a generic interrogative pronoun in that it can replace any *wh*- sign (WHO, WHAT, WHERE, HOW, WHY, WHEN, WHICH).

Moreover, there are gestures that have entered the LIS lexicon as negative forms. This is the case with the signs NOT and EXIST.NOT, both derived from well-established Italian gestures.

a. hs
NOT

b. hs
EXIST.NOT
'There is not/do not exist/do not have'

Note that the two signs shown above are obligatorily accompanied by side-to-side headshake. This feature derives from a popular non-manual gesture, which can occur either in isolation (without speech) or with negative Italian words/expressions. As a gesture, this kind of headshake is used to express or reinforce negation but, crucially, it is not obligatorily required by negative words or sentences in Italian. Conversely, in LIS, it is compulsory in negative clauses, and its distribution is grammatically constrained in that it commonly co-occurs with the negative sign only [SYNTAX 1.5.2]. For these reasons, we can say that side-to-side headshake behaves as a grammatical element.

Information on Data and Consultants

The descriptions in this chapter are based partially on the references below and on the elicitation of new data. The linguistic data illustrated as images and video clips have been checked through acceptability judgments and have been reproduced by Deaf native-signing consultants.

Authorship Information

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3 Parts of speech

Summary 3.1 Nouns. – 3.2 Verbs. – 3.3 Lexical expressions of inflectional categories. – 3.4 Adjectives. – 3.5 Adverbials. – 3.6 Determiners. – 3.7 Pronouns. – 3.9 Conjunctions.

Parts of speech refer to the classification of different categories of lexical items based on their syntactic or morphological behavior. The two most studied parts of speech are nouns and verbs.

In the lexicon, we can distinguish between functional words, which form a closed class, and lexical/content words, which form an open class. Nouns, verbs, adjectives, and adverbials are lexical words, while pronouns, adpositions, conjunctions, numerals, quantifiers, and interjections are functional words.

In LIS, and many other sign languages as well, it is not always easy to identify different parts of speech, and determining the part of speech that a given sign belongs to can be difficult too. For example, many verbs have a nominal counterpart with the same (or a very similar) phonological form: in these cases, distinguishing the verb and the noun that are semantically related can be challenging.

Another difficulty is the fact that we can find non-manual realisations for certain categories of parts of speech. For example, some adjectives can be expressed with a manual form, but may also be realised non-manually when modifying a noun.

Moreover, there are elements listed as a category of parts of speech that in sign languages may have no manual realisation at all. This is, for example, the case of adpositions. Although in some cases

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they can be expressed by a manual sign, very frequently the information conveyed by an independent adposition is expressed by means of relative locations in the signing space.

To determine the class a sign belongs to, it is therefore necessary to consider different aspects, like its position in the sentence, the non-manual markers that accompany its production and if it agrees with other elements.

In LIS, we can identify the following categories: nouns, verbs, determiners, adjectives, pronouns, adverbs, adpositions, and conjunctions.

3.1 Nouns

In a language, the function of a noun is primarily denotative. A noun usually denotes a person, place, entity, animal, idea, concept, etc. Nouns in sign languages may inflect for number, but rarely for case and gender. In LIS, we can distinguish two types of nouns: common nouns and proper nouns, that will be analysed in the following sections.

3.1.1 Common nouns

Common nouns describe (classes of) entities, that can be concrete or abstract, like in the following examples: PAPER and HOPE, where the first name is concrete, while the second is abstract.

Common nouns can also be distinguished between countable and non-countable nouns. Countable nouns, such as CAT, can combine with numerals [LEXICON 3.10.1] and can be pluralised. On the other end, non-countable nouns, such as SUGAR, cannot combine with numerals, nor be pluralised.

In LIS, nouns can be used in a predicative function. LIS, as many other sign languages, does not have copula verbs [SYNTAX 2.1.4.1]. In the following example, we can see a construction in which the noun STUDENT functions as a nominal predicate.

BROTHER POSS$_1$ STUDENT
'My brother is a student.'

It follows that sometimes it can be difficult to understand when a sign is a noun or a verb. This is quite straightforward with signs like STUDENT above, which are semantically easy to identify as nouns because they relate to specific object or entities in the world. In other cases, signs are semantically related to other signs. An example is

the sign for ELECTRICITY, which can be used to express the meanings of 'electricity' and 'electric shock'. As in the case of hyperonymy and hyponymy, the distinction of different meanings is realised by mouth actions, as can be seen below.

'elettricità'
a. ELECTRICITY
'Electricity'

[brrr]
b. ELECTRICITY
'Electric shock'

Moreover, the sign ELECTRICITY is productively used to form the compound ELECTRICITY^CL(5): 'type', meaning 'computer'.

ELECTRICITY^CL(5): 'type'
'Computer'

Other nouns can be recognized because they originate from visual metaphors [LEXICON 1.1]. For instance, the articulation of the sign below metaphorically depicts a sharp object trying to penetrate a barrier.

DIFFICULTY

However, common nouns in LIS, as in other sign languages, sometimes are homophonous to verbs, or only slightly different. In these instances, in order to identify the lexical category of the sign, we must consider: i) its syntactic distribution within the sentence; ii) its morphosyntactic properties; iii) its morphophonological features (particularly, movement features, duration of the articulation, or the presence of mouthings or mouth gestures).

For instance, aspectual or adverbial marking is typical of verbs. In (a), we show the verb FLY, marked by lips protrusion (lp) and puffed cheeks (pc) [MORPHOLOGY 2.1.2.1]. This one-handed sign can be modified by adding the non-dominant hand and reduplicating the movement component to convey the repetition of the action, as shown in (b).

pc
lp
a. FLY

pc
lp
b. dom: FLY++
n-dom: FLY++
'(To) fly several times/frequently.'

When functioning as a noun, the same sign can display morphological plural marking, which is typical of nouns. In (a) below we provide the sign PLANE in its citation form, which can be reduplicated to convey plurality, as shown in (b).

a. PLANE

b. dom: PLANE++
n-dom: PLANE++
'Airplanes'

Moreover, nouns can be distinguished from verbs also considering their morphophonological properties. In the examples below, the noun ROCKET (a) displays a shorter duration and it is accompanied by the labial articulation of the corresponding Italian word *missile*. On the other hand, the corresponding verb CL(G): 'rocket_take_off' (b) displays a longer duration of the articulation and it occurs with the mouth gestures puffed cheeks (pc) and lips protrusion (lp).

'missile'
a. ROCKET

pc
lp
b. CL(G): 'rocket_take_off'
'The rocket is taking off.'

Alternatively, nouns can be distinguished from verbs by taking into account movement features. In the examples below, we show that the noun DRINKING_GLASS (a) displays a shorter and repeated movement with respect to the semantically related classifier predicate (b). For further details on noun-verb differences the reader is referred to [MORPHOLOGY 2.1.2.1] and [MORPHOLOGY 2.2.4]

a. DRINKING_GLASS
'Drinking glass'

b. CL(unspread curved open 5): ‘drink_from_a_glass’
‘(To) drink from a glass’

3.1.2 Proper nouns and name signs

A proper noun is typically used to refer to a specific person, place, or thing. This category includes name signs, i.e. signs used to identify sign language users or famous people, and toponyms, i.e. signs referring to places, brand names, etc. In LIS, proper nouns either have an iconic origin or are influenced by Italian words.

Proper nouns with an iconic origin, also called *descriptive*, have a direct relation to a physical characteristic of the referent, like crooked nose, long hair, and so on. An example is the name sign referring to someone with voluminous and long hair.

ANNA

Sometimes name signs refer to a behavioural characteristic, or they can describe the job or role in society. For instance, the name sign for a person that smiles a lot could be the one illustrated below.

ELENA

In some circumstances, they can also refer to a particular event in the life of a person. For example, someone might be identified by a name sign alluding to a scar that person got when s/he was a child.

MIRKO

Sometimes name signs can have a patronymic origin: they can be the same of the parents and, in this case, they lose their original transparency.

Name signs can also be inherited from homonymous people who, for various reasons, are no longer in the community where the name sign developed. This happens especially in the schools for the Deaf where students leave the school every year.

Moreover, there are name signs that have an iconographic origin: they refer to the characteristics of the representation of the saint with that name. So, PIETRO (Eng. ‘Peter’) is signed with the sign for ‘key’ because in the Christian tradition Saint Peter has the keys of the paradise. PAOLO (Eng. ‘Paul’) is signed with the sign that indicates a beheading, the kind of death Saint Paul suffered. In these cases, the

name sign of the saint may be attributed to a class of persons with the same first name. As in in Deaf schools, where the name sign can be inherited from another person, the name sign loses transparency and becomes opaque.

Some name signs are influenced by Italian [LEXICON 2.2]. For example, there are name signs that are the representation, by fingerspelling, of the first letter of the name or the surname of the person, like M for MARCO [LEXICON 2.2.2.1]. Other name signs use the letters that are visually more salient, like N-N for ANNA [LEXICON 2.2.2.2]. The name sign of Virginia Volterra, one of the linguists who initiated the linguistic studies on LIS [SOCIO-HISTORICAL BACKGROUND 3.2], combines the first letters of the name and surname, with a physical characteristic (thinness) represented by the movement.

VIRGINIA_VOLTERRA

In other cases, the name signs are a translation of the name or the surname of the person [LEXICON 2.2.1]. For example, a person with the surname *Rossi* (that means 'red') could be given the name sign RED, or a person with the name *Angelo* (that means 'angel') could be given the name sign ANGEL.

Other name signs are the re-interpretation of Italian words. For example, a person with the surname *Giovannoni* could be given the name sign YOUNG, because the first part of her/his surname, is similar to the word *giovane*, 'young'.

The same phenomenon applies to toponyms. An interesting example is the sign for Turin, a city in the north of Italy, which is the same sign used for the animal bull because the first part of the word (*Torino*) is similar to the Italian word for 'bull', namely *toro*.

TURIN

Alternatively, signs identifying cities have a direct relation to a monument or something important in that city. For example, MILAN is signed in a way that indicates the spiers of its famous cathedral.

MILAN

Proper nouns are also used to identify brands and companies, as can be seen in the following examples. In all of them, the proper noun iconically derives from the logo of the company. These name signs can either be created among LIS signers, or be borrowed from other sign languages [LEXICON 2.1].

a. NIKE

b. MCDONALD'S

c. MERCEDES

d. PEUGEOT

3.2 Verbs

LIS verbs can be distinguished into three different classes: i) plain verbs, which have an invariable phonological form; ii) agreement verbs, which can be spatially modified to agree with their arguments; and iii) spatial verbs, that can be spatially modified to target the loci associated with locative arguments.

3.2.1 Plain verbs

Plain verbs cannot be spatially modified to agree with their argument(s), although they can usually inflect for aspect [MORPHOLOGY 3.3]. This constraint is due to the phonological specification of the sign: plain verbs are produced on the body of the signer and cannot therefore be separated from the body itself to agree with the arguments. An example of a plain verb is THINK.

THINK

This verb class includes many verbs that express mental or physical states, like emotions, thoughts, feelings, sensations. Plain verbs in LIS are BE_SATISFIED, REMEMBER, SUFFER, WORRY, IMAGINE. Plain verbs also include verbs referring to actions connected with body activities, like EAT and DRINK. In the example below, we can see the verb DRINK.

DRINK

Plain verbs show a homogeneous behaviour with respect to the specification of their arguments: they retain their citation form unchanged, regardless of the person or number of their arguments. For example, the verb REMEMBER is produced in the same way to express the first (a) or third (b) singular person, as we can see below.

a. IX$_1$ REMEMBER
'I remember.'

b.IX$_3$ REMEMBER
'S/he remembers.'

Plain verbs can select either one argument or two arguments. This class, therefore, includes transitive (a) [SYNTAX 2.1.1.1] and intransitive (b) [SYNTAX 2.1.1.2] verbs, as can be seen in the examples below.

a. GIANNI MEAT EAT
'Gianni eats meat.'

b. SARA CRY
'Sara cries.'

In the example (a) above, the verb EAT behaves as a transitive verb because it selects two arguments, GIANNI and MEAT, while the verb CRY (b) behaves as an intransitive verb, selecting only one argument (SARA).

3.2.2 Agreement verbs

Agreement verbs are also called *directional* or *indicating* verbs. Differently from plain verbs, agreement verbs can be spatially modified to mark their arguments (see [MORPHOLOGY 3.1.1] for details). They are usually verbs that express (abstract or concrete) transfer, and their phonological form can involve path movement [PHONOLOGY 1.3.1]. This class of verbs includes: i) verbs with two points of articulation in the neutral space connected by path movement, like HELP (a); ii) verbs with one point of articulation in the neutral space, like BREAK (b); and iii) verbs in which the beginning of the path movement is on the body of the signer and the end of the path movement is in a location associated with an argument of the verb, like SAY (c).

a. GIANNI$_a$ MARIA$_b$ $_a$HELP$_b$
'Gianni helps Maria.'

b. IX$_1$ DISH$_a$ BREAK$_a$
'I broke a dish.'

c. IX$_1$ ADDRESS POSS$_1$ SAY$_2$
'I told you my address.'

It is instructive to look at the distinction between two transitive verbs that are almost synonymous: LIKE and LOVE. LIKE is a plain verb, so it does not have a path movement, rather, it is produced on the body of the signer, as can be seen in the following example.

SARA PIZZA LIKE
'Sara likes pizza.'

On the other hand, LOVE is an agreement verb: it is initially articulated on the body of the signer, like the verb LIKE, but then it moves towards the location associated with the object, PIZZA.

SARA PIZZA$_a$ LOVE$_a$
'Sara loves pizza.'

Agreement verbs may also show agreement with the object (direct or indirect) through orientation of the palm and direction of the path movement. Some of these are TEACH, SHOW, ASK, TELL, TAKE_CARE.

FATHER$_a$ SON$_b$ IX$_{3a\ a}$TAKE_CARE$_b$
'The father takes care of his son.'

Agreement verbs can select one, two, or three arguments. Agreement verbs selecting one argument behave as intransitive verbs. The verbs BREAK (in its intransitive use) and GROW_UP belong to this category.

YOUNG IX(def) GROW_UP
'The boy grew up.'

Agreement verbs selecting two arguments behave as transitive verbs. HELP and LOVE in the sentences reported above are examples of transitive verbs.

Agreement verbs selecting three arguments behave as ditransitive verbs [SYNTAX 2.1.1.1]. Ditransitive verbs involve a notion of (possibly abstract) transfer. They can have: i) two points of articulation in the neutral space expressing agreement with the subject (MARIO) and the recipient/goal indirect object (SARA), like GIVE (a); ii) a path movement which starts from the body of the signer and ends in the location associated with the recipient/goal indirect object (STUDENT), like SAY or EXPLAIN (b) (but see [MORPHOLOGY 3.1] for a different starting point of the verb EXPLAIN when the subject is different from a first person); iii) one point of articulation in the neutral space encoding agreement with the indirect object through both the direction of the path

movement and orientation of the palm, like TEACH (c); iv) they can be articulated on the non-dominant hand and express agreement with the indirect object through direction of the movement, like TELL (d).

a. MARIO_{a} IX_{a} ENVELOPE IX_{3a} SARA_{b} $_{3a}\text{GIVE}_{3b}$
'Mario gives an envelope to Sara.'

b. TEACHER MATH IX_{b} STUDENT_{b} EXPLAIN_{3b}
'The teacher explains math to the student.'

c. SISTER_{a} POSS_{1} SON_{b} $_{a}\text{TEACH}_{b}$
'My sister teaches her son.'

d. MOTHER_{a} SON_{b} IX_{3a} FAIRY_TALE TELL_{b}
'The mother tells her son a fairy tale.'

A peculiar type of ditransitive construction is the one displaying a classifier predicate with two points of articulation in the neutral space connected by path movement. In such constructions, the two points express agreement with the subject argument, encoding the agent/source, and the indirect object, encoding the goal/recipient argument, whereas the hand configuration encodes the theme direct object. In so doing, they show overt manual agreement with the three arguments [SYNTAX 2.1.2.4]. This is illustrated below.

L-U-C-A_{a} G-I-A-N-N-I_{b} DRINKING_GLASS $_{a}$CL(unspread curved open 5): 'give_glass'$_{b}$
'Luca gives a glass to Gianni.'

Agreement verbs including path movement and two points of articulation usually move from the locus associated with the subject to the locus associated with the object. However, in a subclass of transitive agreement verbs called *backward verbs* the reversed order is observed: in this case, the verb moves from the locus associated with the object towards the locus associated with the subject. Verbs like COPY, RECEIVE, INVITE, EXPLOIT, TAKE and CHOOSE belong to this class.

a. COPY

b. RECEIVE

c. INVITE

d. EXPLOIT

e. TAKE

f. CHOOSE

For further information about agreement verbs, see [MORPHOLOGY 3.1].

3.2.3 Spatial verbs

Spatial verbs, like agreement verbs, are spatially modified to mark their arguments. In contrast to agreement verbs, however, spatial verbs show agreement with locative arguments, rather than with the subject or object. An example is the classifier predicate CL(flat open 5): 'move_book'. In the sentence below, the verb is articulated from one location to another (from *a* to *b*) to indicate from where to where the book is moved.

SARA BOOK $_{a}$CL(flat open 5): 'move_book'$_{b}$
'Sara moves the book (from here to there).'

Note that locative arguments can be overtly expressed or can be omitted. In the sentence above, the classifier predicate acts as a transitive verb since it takes an agent (SARA) and a theme (BOOK). The locative arguments, the source and the goal, are implicitly understood from the context.

In the example below, we can observe a spatial verb (PUT) acting as a ditransitive verb since it takes an agent (TEACHER), a theme (BOOK) and a locative argument (SHELF).

TEACHER BOOK SHELF++ $_{a}$CL(flat open 5): 'put_book'$_{b}$
'The teacher puts the book on one of the shelves.'

In the two examples above, the handshape of the spatial verbs shows shape properties of the object moved or manipulated. Since they involve the movement of an object in space, there are no cases of intransitive spatial verbs.

3.3 Lexical expressions of inflectional categories

In LIS, morphosyntactic features of tense, aspect, modality and agreement can be conveyed through both manual and non-manual markers [MORPHOLOGY 3] occurring with the lexical verb. The present section provides a description of the lexical manual markers available.

3.3.1 Tense markers

The present section provides a description of the lexical markers employed in LIS to convey temporal information. The other strategies, namely the use of temporal adverbials and inflection of the verb sign by means of suprasegmental (non-manual) features will be explored in [LEXICON 3.5] and [MORPHOLOGY 3.2] respectively.

To anchor an event in the past or in the future, LIS signers may resort to two lexical markers: DONE (a) and TO_BE_DONE (b). These two signs always follow the main verb defining the event.

a. DONE

b. TO_BE_DONE

The sign DONE expresses anteriority and indicates that the event happened before the time of utterance, as exemplified below.

G-I-A-N-N-I HOUSE BUY DONE
'Gianni bought a house.'
(recreated from Zucchi 2009, 101)

The sign DONE can also express anteriority with respect to a reference time specified by a temporal adverbial.

YESTERDAY TIME THREE AFTERNOON G-I-A-N-N-I EAT DONE
'Yesterday at 3, Gianni had already eaten.'
(based on Zucchi et al. 2010, 201)

The lexical marker TO_BE_DONE indicates that the action or event will take place after the time of utterance, as shown below, or after a reference time.

G-I-A-N-N-I HOUSE BUY TO_BE_DONE
'Gianni will buy a house.'
(recreated from Zucchi 2009, 101)

The lexical tense markers are not employed when temporal information is conveyed through time adverbials and the information can be gathered by the discourse context. In the example below, the first sentence specifies that the action of going to the movies occurred yesterday and the following sentence is understood as describing a past action as well, although lacking an overt marker specifying the tense. The temporal adverbial YESTERDAY introducing the first sentence marks the whole event as past.

YESTERDAY G-I-A-N-N-I CINEMA GO_a MARIA $MEET_a$
'Yesterday Gianni went to the cinema. Maria met him there.'
(based on Zucchi 2009, 102)

3.3.2 Aspectual markers

Aspectual markers are employed to indicate whether the event described by the predicate is complete (perfective aspect) or not (imperfective aspect).

Perfective aspect in LIS is conveyed through the articulation of the sign DONE, which may encode both temporal [LEXICON 3.3.1] and aspectual information. When conveying perfective aspectual information, the sign DONE is related to lexical verbs by following them. In the following example, the sign DONE indicates that the action described by the verb was completed before the time of utterance.

G-I-A-N-N-I HOUSE BUY DONE
'Gianni has bought a house.'
(recreated from Zucchi et al. 2010, 199)

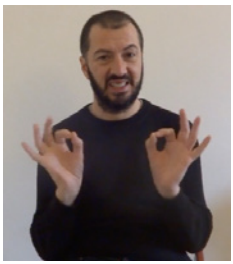
Since DONE acts as a marker of perfectivity, it can only occur with predicates describing events that have an ending point, thus conveying the meaning that the action has been completed and it is not an open process. For this reason, DONE cannot occur with stative predicates (such as STINK) in that they describe a permanent state rather than an event that can be marked as completed.

Moreover, DONE cannot occur with the sign NOT nor with the negative quantifiers NOBODY, NOTHING and NEVER. To convey the meaning that the event described by the predicate has not been completed, LIS employs a simple sentential negation, the sign NOT in example (a), or a negative quantifier, the sign NOTHING in the example (b) [SYNTAX 1.5.1].

a. GIANNI HOUSE BUY NOT
'Gianni has not bought a house.'
(based on Zucchi et al. 2010, 214)

b. G-I-A-N-N-I HOMEWORK NOTHING
'Gianni has not done his homework.'
(based on Zucchi et al. 2010, 212)

The negative counterpart of the completive aspectual marker DONE in LIS is the negative lexical sign NOT_YET (see [MORPHOLOGY 3.5.2] and [SYNTAX 1.5.1.1.1] for further details). The sign NOT_YET includes the presupposition that the event is expected to occur in the future.



NOT_YET

In the example below, the sign NOT_YET indicates that Gianni has not done his homework yet, but he is going to do so in the future.

G-I-A-N-N-I HOMEWORK NOT_YET
'Gianni has not done his homework yet.'
(based on Zucchi et al. 2010, 212)

It is important to notice that DONE can also be used as lexically contentful main verb meaning 'finish'. In these instances, it is produced in preverbal position, as in the example below.

GIANNI CAKE DONE EAT
'Gianni has finished eating the cake.'
(based on Zucchi 2009, 124)

In order to deliver the imperfective aspect, LIS employs lexical adverbials such as EVERY_DAY (a), USUALLY (b), ALWAYS (c).

a. EVERY_DAY CHILD CRY
'The child cries every day.'

b. USUALLY IX$_1$ SLEEP CL(V): 'go_to_bed' LATE
'I usually go to bed late.'

c. CHILD CRY ALWAYS
'The child was always crying.'
(based on Bertone 2011, 222)

Crucially, imperfective aspect can also be encoded morphologically, namely through modifications of the manual verb sign, whose articulation can be lengthened and repeated to convey that the event is an ongoing process of indefinite duration [MORPHOLOGY 3.3.1.1]. For ease of explanation, we report here one example.

CHILD CRY++
'The child was always crying.'
(based on Bertone 2011, 222)

3.3.3 Modality markers

Modality markers are linguistic elements encoding the attitude of the signer toward the validity of the content of a proposition, or the necessity/permission of an event to happen. To be more specific, we usually distinguish between markers of deontic modality and markers of epistemic modality. Deontic modality is the semantic category conveying obligation, necessity, recommendation, ability, permission and intention/volition. On the other hand, epistemic modality carries the judgment of the signer with respect to the truth of the utterance and to the probability of the event, based on his/her knowledge or ev-

idences. In other words, epistemic markers yield the signer's estimation of the likelihood of an event or state. The circumstances influencing the event can either be internal or external to the participant(s).

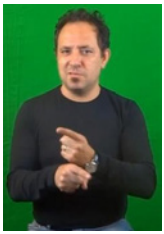
Sign languages can select various markers to encode modality, either lexical, such as manual signs, or morphosyntactic, such as non-manual markers occurring with modal verbs or morphological modifications of the articulation of the verb.

In LIS, we find lexical markers, i.e. manual signs, dedicated to each modality. We describe them in turn. For the morphological features and syntactic distribution of modality markers, the reader is referred to [MORPHOLOGY 3.4.] and [SYNTAX 2.3.1.3.], respectively.

3.3.3.1 Deontic modality

LIS employs several manual signs to encode obligation, prohibition, necessity, recommendation, ability, permission, intention and volition.

Obligation can be conveyed through the signs MUST and OBLIGATION. The modal MUST is the unmarked marker mainly encoding participant-internal obligation. It can be marked by furrowed eyebrows (fe).



MUST

Below, we provide a couple of examples showing the use of MUST in context.

cond
a. PALM_UP TOOTH HURT EXTRACT MUST
'Well, if your tooth hurts, it must be extracted.'

fe
b. ROOM POSS(G)$_1$ MESS. MUM IX$_3$ SAY$_1$ ARRANGE MUST
'My room was a mess. My mother told me: "You must tidy it."'

Obligation imposed by participant-external conditions, such as public policies or laws, is encoded through the marker OBLIGATION, which is likely to be an example of grammaticalisation into modality marker.

OBLIGATION
'It is obligatory/Have to'

The example below shows the use of OBLIGATION in context.

cond
COMPETITION PARTICIPATE WANT IX_2 REGISTRATION OBLIGATION
'If you want to participate in the competition, you have to sign up for it.'

It should be noted that the sign OBLIGATION can also be used as an agreement verb. This is illustrated below.

sq y/n
IX_2 FILM IX_a $HORROR_a$ IX_a FEAR IX_2 IX_1 $_1OBLIGATION_2$ SEE_a
'As for horror films, do they scare you? I force you to watch them.'

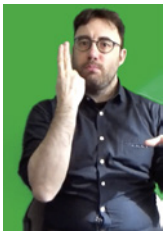
Prohibition is expressed through the markers MUST^NOT and FORBIDDEN. Both can occur with the typical negative non-manual marker, i.e. headshake (hs). MUST^NOT encodes a general prohibition.

MUST^NOT
'Must not'

The example below shows the use of MUST^NOT in context.

hs
EARLIER IX_{1+2} GO_OUT HOUSE FATHER IX_{a} SAY_{3a} MUST^NOT
'You must not tell dad that we went out earlier.'

FORBIDDEN is used to express prohibitions regulated by public policies that cannot be avoided or changed.

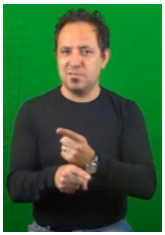


FORBIDDEN

The example below shows the use of FORBIDDEN in context.

sq re hs
FRIARY ENTER CLOTHES T-SHIRT SHORTS FORBIDDEN ABSOLUTELY
'It is absolutely forbidden to enter a friary with a t-shirt and shorts.'

Necessity is conveyed through the markers MUST and BE_FORCED. MUST can be used to convey a necessity connected to unexpected participant-internal conditions.



MUST

In the example below, the signer expresses the necessity to go to the supermarket since he is having friends for dinner but he finds out that his fridge is empty. As the example shows, MUST is marked by head nod (hn) rather than furrowed eyebrows as is usually the case when MUST encodes obligation.

hn
IX$_1$ SUPERMARKET GO MUST
'I must go to the supermarket.'

On the other hand, when necessity is imposed by external conditions, and we have no possibility of avoiding it, we use BE_FORCED. This marker is lexically specified for the non-manuals grinding teeth (gt) and head tilt backward (ht-b).

gt
ht-b
BE_FORCED
'(To) be forced to'

Below, we provide an example showing the use of BE_FORCED in context.

gt
ht-b
VENICE IX(loc)$_a$ BE_COMMON IX$_a$ WATER CL(5): 'raise' IX$_1$ BE_FORCED
BOOT BUY
'The high-tide is very common in Venice. I have to buy boots.'

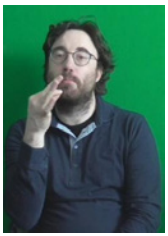
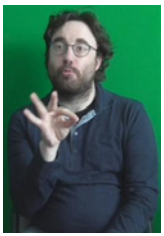
Recommendations can be expressed by employing the sign BETTER, usually accompanied by a head tilt to the side. This is illustrated below.

ht-left
BETTER

The use of BETTER in recommendations is illustrated below.

cond ht-left
TOOTH HURT IX$_2$ BETTER TOOTH^EXTRACT GO
'If your tooth hurts, you should get it extracted.'

Ability is conveyed through the sign BE_ABLE.

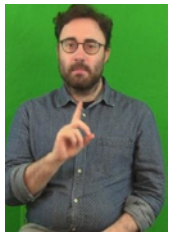
BE_ABLE
'(To) be able to'

BE_ABLE can either occur with the mouthing of the Italian modal *potere* 'can' inflected for the third singular person, i.e. *può* (a), or with the mouthing of the Italian word meaning 'be able', namely *capace* (b). In both instances, the sign expresses ability and can be marked by head nod. We provide two illustrative examples below.

y/n
'può'
a. CAR WHEEL CHANGE BE_ABLE IX$_2$
'Can you change the car wheel?'

hn
'capace'
b. IX$_1$ SURF BE_ABLE IX$_1$
'I can surf.'

The deontic negative counterparts of BE_ABLE are BE_ABLE^NOT and IMPOSSIBLE_PA_PA [SYNTAX 1.5.1.1.2]. Both occur with the typical non-manual for negation, i.e. headshake (hs).

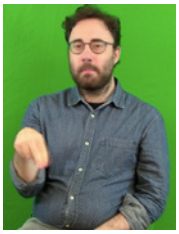


hs
BE_ABLE^NOT
'(To) not be able to'

BE_ABLE^NOT is used to express the inability of doing something, as exemplified below.

hs
'capace'
IX_1 SWIM BE_ABLE^NOT
'I cannot swim.'

The sign IMPOSSIBLE_PA_PA is glossed this way because it is obligatory accompanied by the mouth gesture [pa pa].



hs
[pa pa]
IMPOSSIBLE_PA_PA
'(To) not be able to'

This sign conveys the inability of doing something despite having tried hard to succeed in it. In other words, it implies various attempts, which eventually failed.

hs
IX_3 MIRKO $_3$TEACH$_1$ CHESS RULE IX_1 UNDERSTAND IMPOSSIBLE_PA_PA
'Mirko tried hard to teach me the rules of chess, but I cannot understand them.'

Permission in LIS involves three different markers: BE_ABLE, CAN and FEEL_FREE. BE_ABLE is used to grant permission to do something, with respect to external conditions. It can be marked by furrowed eyebrows and/or head nod. Since its articulation is homophonous to the marker employed to encode ability, it is only the context that allows to disambiguate its function.

BE_ABLE
'(To) be allowed to'

For instance, in (a) it is used to convey that the daughter is now allowed to return home later since she is older. In (b), the permission conveyed by the sign BE_ABLE depends on the time allotted to visitors in the hospital.

hn
fe
a. TODAY IX$_2$ HOUSE COME_BACK TIME LATE BE_ABLE
'Today, you are allowed to come home later.'

hn
fe
b. HOSPITAL $_2$COME$_1$ BE_ABLE TIME AT_EIGHT CLOSE
'You are allowed to come to the hospital until 8.'

CAN is employed to ask or give permission to do something, depending on personal (i.e. participant-internal) conditions.

CAN

The use of CAN in context is shown in the two examples below.

a. IX_2 HOSPITAL COME CAN. IX_1 HAPPY IX_1
'You can come to visit me at the hospital. I am glad if you do.'

b. SUITCASE IX_2 STAY CAN
'You can leave your luggage (here).'

FEEL_FREE yields a more general sense of permission.

FEEL_FREE
'(To) feel free to'

Below, we provide an example showing the use of FEEL_FREE in interaction.

y/n
A: IX_1 $_1ASK_2$ COMPUTER TOUCH IX_1 TYPE
B: FEEL_FREE IX
'I ask you if I can use that computer?' 'Yes, feel free to do so.'

The deontic negative counterpart of BE_ABLE encoding permission is BE_ABLE^NOT, which conveys the general impossibility for a state of affairs to occur. In other words, it encodes that the event is not al-

lowed due to external conditions. It is usually marked by headshake on the negation NOT.

hs
BE_ABLE^NOT
'(To) not be allowed'

The example below shows the use of BE_ABLE^NOT in context.

hs
GIANNI SMOKE BE_ABLE^NOT
'Gianni is not allowed to smoke.'

The deontic negative counterpart of CAN is CAN^NOT (marked by headshake), which is used to deny the permission to do something, depending on participant-internal conditions. This is illustrated in the example below.

hs
CAN^NOT
'Cannot'

Below, we provide an example showing the use of CAN^NOT in context.

hs
IX_3 HOSPITAL COME CAN^NOT REASON IX_{1+3} ARGUE
'He cannot come to the hospital because we had a quarrel.'

Intention/volition is conveyed in LIS through the modal WANT, which can be accompanied by head nod.

WANT

The example below shows the use of WANT to convey the intention to buy a house.

hn
IX$_1$ HOUSE BUY WANT IX$_1$
'I want to buy a house.'

Crucially, when the signer wants to express a desire, rather than a true intention of doing something, the modal WANT displays a reduplicated and reduced articulation. Moreover, the verb is marked by the non-manual consisting in head tilting left and right, to encode the wish which is being expressed.

ht-right-left
IX$_1$ HOUSE BUY WANT++
'I would like to buy a house.'

The negative counterpart is WANT^NOT marked by headshake, as in the example below.

hs
IX$_1$ FILM IX$_1$ SEE WANT^NOT
'I don't want to watch a film.'

3.3.3.2 Epistemic modality

Epistemic modality markers convey the signer's evaluation or judgment about the possibility or impossibility that an event has occurred, is occurring or will occur. The signer can be more or less cer-

tain about his/her evaluation, which is formulated considering direct evidences or personal knowledge or belief. LIS employs several manual signs yielding epistemic modality, some of which also function as deontic markers [LEXICON 3.3.3.1]. In these instances, it is only the context that allows to disambiguate the function of the modality marker.

In this section, we list the lexical markers of epistemic modality and their semantics. For details about the morphological properties of the corresponding non-manual markers, as well as the syntactic distribution of the epistemic markers, the reader is referred to [MORPHOLOGY 3.4] and [SYNTAX 2.3.1.3], respectively.

Epistemic certainty, namely certainty about the likelihood of the event in the utterance, is encoded through the modal BE_ABLE, and the signs OBLIGATION and SURE. These yield slightly different semantics but share the certainty the signer has of the likelihood of the event described in the utterance, which is based on his/her knowledge or available evidences. We describe each in turn.

BE_ABLE encodes a strong degree of certainty, and it is used when the signer knows that the event is possible based on his/her knowledge of the external conditions. This is further specified by the articulation of the non-manuals head nod (hn) and furrowed eyebrows (fe) which in general express certainty [MORPHOLOGY 3.4.2].

fe
hn
BE_ABLE
'Can'

In the example below, the signer implies that he has the possibility of checking the luggage because he knows that the situation allows him to do that (for instance, he does not have anything else to do).

fe
hn
SUITCASE POSS_3 IX_1 CONTROL BE_ABLE IX_1
'I can watch her luggage.'

BE_ABLE also functions as epistemic marker when it conveys the certainty of the signer about the ability of someone/something else. In other words, it can be used when the signer is sure that the event is possible because he knows that the agent is capable of fulfilling it. In so doing, the marker has a double function in that it conveys both the ability of the interlocutor and the certainty of the signer about it. This holds both when the agent is human, in (a) below the signer is saying that he is sure that Gianni is able to win the competition, and when the agent is non-human, in (b) the signer knows that the electric car can drive for 400 km. In so doing, epistemic certainty is conveyed. In both instances, BE_ABLE is reduplicated and marked by furrowed eyebrows (fe), repeated head nod (hn) and puffed cheeks (pc), as to underline the certainty.

pc
hn
fe
a. GIANNI WIN BE_ABLE++
'I am sure that Gianni is able to win (the competition).'

pc
hn
fe
b. FOUR^HUNDRED KILOMETRE BE_ABLE++
'(The electric car) has a driving range of 400 km.'

OBLIGATION is used when the signer describes an event that is inevitably going to happen due to the present conditions. In these instances, the sign occurs with the mouthing of the Italian word for 'necessarily', namely *per forza*.

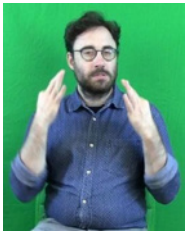
OBLIGATION
'Necessarily'

The example below shows the use of OBLIGATION to express that eating all chocolate cream is definitely going to happen.

Context: you and your girlfriend love chocolate cream. She bought a jar and hid it. You find it while she is not at home.

‘per forza’
IX$_1$ EAT ALL OBLIGATION
‘I eat it all, I can’t resist.’

One further possibility of expressing epistemic certainty is to employ the sign SURE.



SURE
‘(To) be sure’
‘Surely’

This sign can either function as a predicative adjective (a), or sentential adverb (b). It can be accompanied by head nod and furrowed eyebrows.

a. IX$_1$ SURE IX$_2$ CHESS UNDERSTAND IMPOSSIBLE_PA_PA
‘I am sure that you will never understand how to play chess.’

hn
fe
b. SURE GIANNI COME
‘Gianni is coming surely.’
(based on Lerose 2012, 344)

The sign OBVIOUS, sometimes marked by head nod, can be employed as well. Interestingly, this could be an example of grammaticalisation of the adjective BRIGHT into a modal encoding epistemic certainty.

OBVIOUS

Below, we provide an example showing the use of OBVIOUS as lexical marker of epistemic modality.

LUCA$_a$ IX$_a$ EXAM PASS OBVIOUS
'It is obvious that Luca will pass the exam.'

On the other hand, epistemic certainty that the event is surely not going to happen is conveyed in LIS through CAN^NOT and IMPOSSIBLE_NO_WAY.

CAN^NOT is used to convey that the event cannot happen because of the lack of favourable conditions. It implies that if the conditions change, the event may become possible. It can be accompanied by headshake.

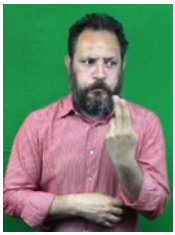
CAN^NOT
'(To) not be possible'

Below, we provide a couple of examples showing the use of CAN^NOT as lexical marker of epistemic modality.

cond
a. SEA SASS(flat open 4): 'flat' WAVE EXIST.NOT LEAVE SURF
CAN^NOT
'If the sea is flat with no waves, it is not possible to surf.'

b. CAR WHEEL HOLE CL(flat open 5): ‘deflate’. IX JACK EXIST.NOT.
hs
WHEEL CHANGE CAN^NOT
‘You have a punctured tyre. You do not have the jack. It is impossible to change the wheel.’

The sign IMPOSSIBLE_NO_WAY is the strongest negative epistemic marker. It is lexically specified for the non-manual puffed cheeks (pc) and can be accompanied by headshake.



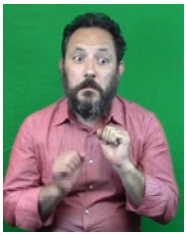
hs
pc
IMPOSSIBLE_NO_WAY
‘(To) be absolutely unlikely to happen’

This marker yields the knowledge of the signer that the event is surely not going to happen due to the absolute absence of favourable conditions.

a. WHEEL CAR IX_1 CHANGE IMPOSSIBLE_NO_WAY
‘I cannot change the (car) wheel.’

b. IX_1 SURF IMPOSSIBLE_NO_WAY BECAUSE SHARK EXIST IX(loc) IX_1 NOT
IMPOSSIBLE_NO_WAY
‘I am definitely not going to surf because there are sharks, I really can’t.’

When the signer is expressing his/her judgment about the likelihood of an event, (s)he uses BE_POSSIBLE(1) or BE_POSSIBLE(2). These manual signs only differ in their movement: BE_POSSIBLE(1) displays an arc-shaped downward path movement (a), whereas BE_POSSIBLE(2) shows a double downward short movement (b).



a. BE_POSSIBLE(1)
'(To) be possible'

b. BE_POSSIBLE(2)
'(To) be possible'

These epistemic markers can either be used if the signer has some evidence for the likelihood of the event, or to express his/her hypotheses and suppositions. The different degrees of certainty and possibility are encoded through non-manual markers (see [MORPHOLOGY 3.4.] for their possibility of spreading). Specifically, squinted eyes usually convey the signer uncertainty about the likelihood of the event (a); raised eyebrows and mouth corners down (md), sometimes combined with a head tilt backwards, express that the event could be possible but the signer is not sure due to lack of evidence. In other words, they express a presupposition (b). Head nod encodes a higher probability that the event can happen considering the circumstances (c-d), despite the lack of evidences. Signers can add a further manual marker, glossed PALM_BACK in (d), to state that they do not have evidence for it at the time of the utterance.

sq
a. FRIEND IX$_1$ LOOK_FOR FIND BE_POSSIBLE(1)
'I (think) I can find the friend I am looking for.'

md
re
b. HEADACHE BE_POSSIBLE(1) REASON SLEEP LITTLE
'Maybe you have a headache because you did not sleep enough.'

hn
c. IX$_a$ DAUGHTER IX$_a$ FUTURE QUEEN BE_POSSIBLE(2)
'In the future, the daughter could become queen.'

d. DATE TWO^FIVE DECEMBER TRAIN IX(LOC) SEAT EMPTY
hn
BE_POSSIBLE(2) PALM_BACK
'It is possible to find free seats on the train on December 25th.'

When the signer has no knowledge or evidence about the likelihood of the event, (s)he can use the sentence adverbial MAYBE (a) [LEXICON 3.5], the modal SEEM (b), or the verb KNOW^NOT (c) occurring with the typical non-manual for negation, i.e. headshake.

a. MAYBE

b. SEEM

c. KNOW^NOT
'Do not know'

We provide one example for each marker below.

a. MAYBE IX BROTHER POSS$_1$ ACCIDENT
'Maybe my brother had a (car) accident.'

b. SEEM IX BROTHER POSS$_1$ FORGET
'It seems that my brother forgot (our appointment).'

hs
c. IX BROTHER POSS$_1$ WHERE IX$_1$ KNOW^NOT
'I do not know where my brother is.'

3.3.4 Agreement markers

In LIS, plain verbs [LEXICON 3.2.1], namely verbs articulated on the body, can realise agreement with their arguments through an agreement marker that can be considered an auxiliary (glossed AUX). This is a semantically empty deictic sign that can be used to express agreement relation only when animate arguments are involved. AUX is phonologically similar to a pronoun, thus it could be an instance of grammaticalisation of a pronominal element into an auxiliary. It displays a path movement from the subject to the object of the predicate. As we can see in the following example, the agreement marker AUX follows the verb.

GIANNI$_a$ PIETRO$_b$ BE_FAMILIAR $_a$AUX$_b$
'Gianni knows Pietro.'
(based on Bertone 2011, 159)

AUX can express all person combinations. We provide three illustrative examples: in (a) it realises agreement between a first person sin-

gular subject and a third person singular object; in (b) agreement is between a second person singular subject and a first person singular object; in (c) AUX connects a second person singular subject with a third person plural object.

a. IX_1 IX_3 BE_FAMILIAR $_1\text{AUX}_3$
'I know him/her.'

b. IX_2 IX_1 BE_FAMILIAR $_2\text{AUX}_1$ SURE
'You know me for sure.'

c. IX_2 IX_{3pl} IX_2 BE_FAMILIAR $_2\text{AUX}_{3pl}$
'You know them.'

Interestingly, AUX can also be employed with agreement verbs showing two points of articulation, such as GIVE. In such instances, the occurrence of the auxiliary is to reinforce the semantics of the verb, so it is not obligatory since the verb is already marking the agreement between the subject and the indirect object. See the example below.

GIANNI_a PIETRO_b BOOK $_a\text{GIVE}_b$ $_a\text{AUX}_b$
'Gianni gives the book to Pietro.'

A further auxiliary marker is GIVE_AUX, which is a causative auxiliary marker employed in causative psychological predicates to show overt morphological agreement with the subject (EARTHQUAKE) and the experiencer object (first person singular) [SYNTAX 2.1.1.3].

EARTHQUAKE GIVE_AUX_1 FEAR
'Earthquakes scare me.'

3.4 Adjectives

Adjectives are typically used to describe, qualify, or specify a nominal element. Note that the same sign may be used as an adjective or an adverbial, as exemplified below with the sign QUICK [LEXICON 3.5].

FAST
'Quick'
'Quickly'

Some adjectives in LIS must co-occur with specific non-manuals, usually connected with the semantic meaning of the sign. To illustrate, the adjective THIN must be simultaneously articulated with tongue protrusion (tp), which typically indicates small amount or thinness.

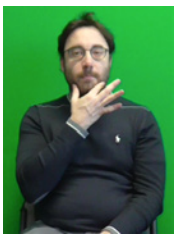
tp
THIN

A functional distinction that it is important to keep in mind is that between attributive and predicative adjectives. On the one hand, attributive adjectives occur within the noun phrase and modify the noun. For a discussion of the syntactic distribution of adjectives within the nominal phrase see [SYNTAX 4.5]. On the other hand, predicative adjectives function as verbs: they do not directly combine with the noun, but predicate something about it.

The distinction between attributive and predicative adjectives might not be straightforward in LIS since both types of adjectives usually follow the noun they refer to. So, for instance, in a sequence of manual signs like FURNITURE OLD, the adjective OLD can function both as attributive and predicative adjective (*the old furniture* vs. *the furniture is old*). So, word order cannot be used as diagnostic test. How the two functions can be distinguished is discussed in the next sections with concrete examples.

3.4.1 Attributive adjectives

Attributive adjectives combine with a noun within the noun phrase. We provide below a couple of adjectives that can be used attributively: BEAUTIFUL and BIG.



a. BEAUTIFUL

b. BIG

Looking at the articulation of these adjectives, we can see that BEAUTIFUL is body anchored (a), whereas BIG is produced in the neutral space (b). The distinction between body-anchored and non-body-anchored adjectives is relevant in terms of agreement [SYNTAX 4.5].

The lexical category of adjectives also includes Size-and-Shape-Specifiers (SASS) [MORPHOLOGY 5.2], signs denoting the shape of the referent. For example, the SASS illustrated below can be used to describe a round shape, and hence fulfils an adjectival function.

SASS(curved open L): ‘round’
‘Round’

The fact that an attributive adjective and the related noun belong to the same noun phrase is signalled non-manually and prosodically. In the example below, the adjective OLD is an attribute of the noun FURNITURE. These two signs are marked by the same non-manuals, which generally consist in raised eyebrows (re), although variation across signers is documented in terms of intensity and kind of facial expression.

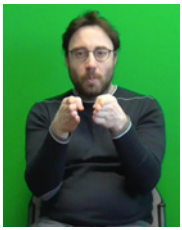
re
FURNITURE$_a$ OLD IX$_a$ CHANGE NEED
‘The old furniture must be replaced.’
(adapted from Bertone 2007, 166)

The pointing sign (IX) occurring at the end of the noun phrase is optional. On the optionality of pointing signs, the reader is referred to the section on definite determiners [LEXICON 3.6.1].

re
FURNITURE OLD CHANGE NEED
‘The old furniture must be replaced.’
(adapted from Bertone 2007, 166)

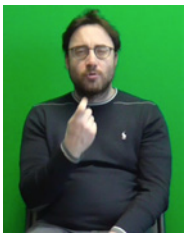
The distinction between the noun phrase (containing noun and attributive adjective) FURNITURE OLD (IX) and the verb phrase CHANGE NEED is usually signalled by: i) the use of different non-manuals, ii) the presence of an (optional) pointing sign (IX), which generally is the last element of noun phrase, and iii) an in-between prosodic break, which is typically combined with a head nod.

Most adjectives in LIS are independent manual signs (like BIG above). However, some adjectival meanings can be conveyed through non-manuals simultaneously combined with the noun they modify. We provide below a couple of examples to clarify this possibility.



tp
a. STREET
'Narrow street'
(recreated from Petitta, Di Renzo, Chiari 2015, 161)

md
fe
b. YELLOW
'Disgusting yellow'
(inspired by Fornasiero 2015, 89)



fe
c. RED
'Dark red'
(recreated from Bertone 2011, 29)

In (a), tongue protrusion (tp) simultaneously layered on the manual sign STREET expresses the meaning of 'narrow'. Furrowed eyebrows

(fe) together with tensed mouth-corners down (md) can be used to express contempt, as exemplified in (b). Furrowed brows co-occurring with a colour sign like RED indicates a dark tint, as in (c).

3.4.2 Predicative adjectives

As the label suggests, predicative adjectives function as predicates, hence are used to state something about the noun. Contrary to their attributive counterpart, predicative adjectives are not included in the noun phrase. An illustrative example is reported below.

re
FURNITURE$_a$ IX(B)$_a$ OLD
'The furniture is old.' (adapted from Bertone 2011, 8)

The predicative nature of the adjective OLD can be recognised through the following cues: i) absence of the non-manuals characterising noun phrases, ii) presence of an (optional) localising pointing sign between noun and adjective, and iii) a prosodic break combined with a head nod signalling the boundary between noun phrase and verb phrase.

The pointing sign IX can be expressed by the dominant hand after the noun or, alternatively, it can be expressed by the non-dominant hand while the dominant hand articulates the noun FURNITURE.

Some predicative adjectives might allow for aspectual inflection. This is discussed in [MORPHOLOGY 3.3]. Syntactic characteristics of non-verbal predication are addressed in [SYNTAX 2.1.4].

3.5 Adverbials

Adverbials, like adjectives, are modifying elements: they can modify sentences, verbs, adjectives or other adverbials.

In some languages, adverbials are usually marked by derivational affixes. For instance, in Italian the suffix *-mente* identifies a kind of adverbial (e.g. *lenta-mente*, 'slow-ly').

In the sign languages studied to date, LIS included, there seems to be no morphological systematic distinction between adjectives (a) and the corresponding adverbial (b), as shown by the following examples.

a. YOUNG$_a$ IX$_a$ FAST
'The boy is quick.'

b. YOUNG$_a$ IX$_a$ RUN FAST
'The boy runs quickly.'

As shown in the (b) example above, adverbial modification in LIS may be realised with a specific sign. However, adverbial modification can also be simultaneous. This happens when modification is expressed by specific non-manuals that convey the meaning of the adverb or by the modification of a manual parameter, like movement. The following two examples illustrate these two possibilities.

ce we
blow
a. SARA BOOK READ$_{[fast]}$
'Sara reads quickly a book.'
(based on Lerose 2012, 328)

fe
sq
b. YOUNG$_a$ IX$_a$ RUN$_{[fast]}$
'The boy runs fast.'

In (a) the verb READ is performed with a quick and sharp movement and it is accompanied by a specific mouth gesture. In (b) a mouth gesture indicates the way in which the action described by the verb takes place and the verb is performed with a more rapid and repeated movement.

When overtly expressed by a specific sign, adverbials behave in different ways depending on the type of adverb. It is possible to identify different types of classification. The classification we propose considers the semantic aspect of adverbials.

Manner adverbs indicate the way an action takes place. They are mostly expressed by non-manuals, as in (a) and (b) above, but if they are expressed by a sign, it usually follows the verb. Examples of this phenomenon are reported below.

a. YOUNG$_a$ IX$_a$ RUN FAST
'The boy runs fast.'

b. SARA READ FAST
'Sara reads quickly.'
(based on Lerose 2012, 327)

Locative adverbs indicate where an action takes place. They are usually expressed by a specific lexical sign or by a deictic form pointing toward a location in the signing space. Here we can find an example.

DAVIDE EAT OUTSIDE
'Davide eats out.'
(based on Lerose 2012, 333)

Temporal adverbs indicate the time in which an action takes place. They are usually expressed by a specific lexical sign.

TODAY DAVIDE COME
'Today Davide is coming.'
(based on Lerose 2012, 336)

The unmarked position of temporal adverbs is at the beginning of the sentence, even if other positions are possible.

In some circumstances, it is not necessary to use a specific sign, but the adverb is expressed by the repetition of the verb. For example, the adverb ALWAYS can be expressed by a lexical sign (a) or by the reduplication of the movement of the verb (b).

a. SARA READ ALWAYS
'Sara always reads.'

b. SARA READ++
'Sara always reads.'

Quantitative adverbs indicate an indefinite quantity that refers to the action performed by the verb. They are usually expressed by non-manuals (prolonged mouthing and squint), and by modifying the parameter of movement within the verb sign, as in the following example.

sq
'st[uuu]dia'
DAVIDE STUDY++
'Davide studies a lot.' (based on Lerose 2012, 341)

However, the same meaning can be conveyed by a specific sign, like in the following examples:

a. DAVIDE STUDY MANY
'Davide studies a lot.'

b. DAVIDE STUDY VERY
'Davide studies a lot.'

In this last example, the status of VERY is not very clear. Some signers do not consider it a sign but a gesture, also used by hearing people in the Italian culture.

Speaker-oriented adverbs express a judgment or an evaluation. In this case, the adverb is usually expressed by a specific sign and its corresponding non-manual marking.

SURE GIANNI COME
'Gianni is surely coming.'
(based on Lerose 2012, 344)

In this case, the position of the adverb in the sentence does not change the meaning of the sentence itself.

a. GIANNI COME SURE
'Gianni is surely coming.'

b. GIANNI SURE COME
'Gianni is surely coming.'

It is also possible to convey the meaning of speaker-oriented adverbs by modifying the movement component of the verb and adding a specific non-manual marking. As illustrated below, certainty can be conveyed by articulating the verb with a sharp and quick movement and a simultaneously head nod (a). To express doubt, the verb is usually executed in a less tense way with sideward head tilt and downward mouth-corners (b).

hn
a. DANIELE COME$_{[fast]}$
'Daniele is surely coming.'

ht-left
md
b. DANIELE COME
'Daniele is coming probably.'

For adverbs of negation see [MORPHOLOGY 3.5] and [SYNTAX 1.5]. For more details on the distribution of adverbs, see [SYNTAX 2.3.1.6].

3.5.1 Verb-oriented adverbials

To be developed.

3.5.2 Sentence adverbials

To be developed.

3.6 Determiners

A determiner is an item that combines with the noun and specifies its referentiality, i.e. the relation between the noun and what the noun refers to [PRAGMATICS 1]. Specifically, it indicates whether the noun refers to a definite or indefinite element of a class. For this reason, determiners are usually categorised into two classes: definite [LEXICON 3.6.1] and indefinite [LEXICON 3.6.2].

The term *determiners* is intended here to include both articles and demonstratives. The syntactic distribution of determiners in LIS is addressed in [SYNTAX 4.1].

3.6.1 Definite determiners

Generally speaking, definite determiners are used when the addressee can identify who or what is being talked about.

In LIS, they are realised through pointing signs directed toward a spatial location. They are usually articulated with a G handshape. Bear in mind that pointing signs are polyfunctional elements in that they can fulfil several grammatical functions: determiners, demonstratives, personal pronouns [LEXICON 3.7.2], locatives [LEXICON 3.7.1], and (in some varieties) possessives [LEXICON 3.7.3]. Determining the function of a given pointing sign solely on the basis of its phonological articulation is not always straightforward. The syntactic distribution and the phrasal context may help shed further light on its nature.

Definite determiners can function either as articles or demonstratives. This functional distinction is reflected in differences in articulation and usage. Definite articles are usually pointing signs with a relaxed position realised quickly and not directed toward a specific point. Their movement cannot undergo path variation (near vs. far).

IX(def)

The referent associated with the definite article must be clearly identifiable to the addressee. To illustrate this point, we provide below three concrete examples in which definite articles can be found. It is important to note that, in all three cases, the use of the definite article is not compulsory [SYNTAX 4.1.1.4]. This optionality is shown in the pairs of sentences below, which differ for the presence/absence of the pointing sign, IX(def).

A first purpose for using a definite determiner is to refer back to someone (or something) that has been previously mentioned in the discourse. In (a) below, a man is first introduced in the discourse and then he is mentioned again. At the second mentioning, the addressee is already familiar with the referent (MAN) and identifies it on the basis of the linguistic context.

a. MAN UMBRELLA TAKE
'The man took the umbrella.'

b. MAN IX(def) UMBRELLA TAKE
'The man took the umbrella.'

Definite determiners may also refer to to something or someone that is easily identifiable in the extra-linguistic context. In the following examples, two friends are doing some handwork together and there are several tools on the table. One asks the other to pass him the hammer. The referent (HAMMER) is identified through the extra-linguistic context. Indeed, it is visible both to the signer and the addressee.

a. HAMMER $_{2}$GIVE$_{1}$
'Give me the hammer!'

b. HAMMER$_{a}$ IX(def)$_{a\ 2}$GIVE$_{1}$
'Give me the hammer!'

Finally, definite determiners may also be used to refer to a referent which is unique in its genre. In the following examples, the Pope was in Rome and visited the Italian Parliament. The addressee identifies the referent (POPE) because it is unique in its genre (similarly to the moon, the engine of a car, and the bride when talking about a wedding).

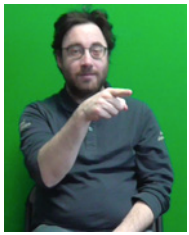
a. POPE PARLIAMENT GO
'The Pope went to the Parliament.'

b. POPE_{a} IX(def)_{a} PARLIAMENT GO
'The Pope went to the Parliament.'

Like in some other languages, LIS allows for proper nouns to occur with definite articles. As illustrated in the example below, the name sign MARIA is followed by the article.

wh
MARIA IX(def) BRING $\text{Q}_{\text{artichoke}}$
'What did Maria bring?'

Demonstratives are intrinsically definite, so they do not have an indefinite counterpart. Like articles, demonstratives are realised as pointing signs. Unlike articles, they usually point toward a specific point in the signing space and are articulated with a tense movement.



IX(dem)

To illustrate, we provide below a sentence including a pointing sign functioning as demonstrative, here glossed as IX(dem).

BOOK IX(dem) IX_{1} BUY WANT IX_{1}
'I want to buy this book.' (adapted from Brunelli 2011, 56)

The plural form of demonstratives is usually realised moving the pointing sign through an arc-shaped path on the horizontal plane.

This sign is glossed as IX(dem)$_{arc}$.

BOOK IX(dem)$_{arc}$ IX$_1$ BUY WANT
'I want to buy these books.' (adapted from Brunelli 2011, 50)

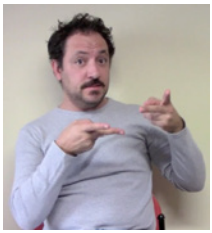
Demonstratives in LIS can be marked for emphasis through movement reduplication. This form is glossed as IX(dem)++.

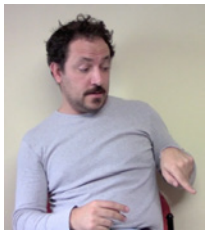
BOOK IX(dem)++ IX$_1$ BUY WANT IX$_1$
'I want to buy this very book.' (adapted from Brunelli 2011, 50)

Unlike articles, demonstratives are obligatory in their contexts. They signal that the referent is directly accessible to the addressee. The relationship between demonstrative and referent can be of two types: deictic or anaphoric. Deictic demonstratives are used to refer to entities present in the extra-linguistic context. For example, Gianni is looking for a chair in the classroom and Maria suggests that he should take the chair located close to her.

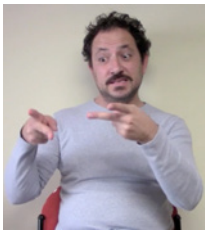
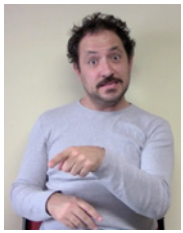
CHAIR IX(dem) TAKE
'Take this chair!'

Since deictic demonstratives rely on the surrounding extra-linguistic context, they might refer to entities more or less distant from the signer. The distance between signer and referent is signalled by the extension of the movement of the arm in the signing space. For example, if the chair is close to the signer's body, the movement of the demonstrative is short (proximal demonstrative). On the contrary, if the chair is in a distant location, the demonstrative reflects this distance with a longer movement (distal demonstrative). Proximal (a) and distal (b) demonstratives are exemplified below.





a. CHAIR IX(dem)$_{[proximal]}$
'This chair'

b. CHAIR IX(dem)$_{[distal]}$
'That chair'

Unlike deictic demonstratives, anaphoric demonstratives are used to refer to entities that are not present in the extra-linguistic context, but have been previously mentioned in the discourse. In the example below, the signer tells a friend that he usually builds lots of different chairs in his lab and that the previous week he built a chair with fire-resistant materials. Later in the discourse, he anaphorically refers back to the fire-resistant chair to specify its value.

CHAIR$_a$ PE$_a$ IX$_1$ SELL THREE^HUNDRED EURO
'I sold this chair for three hundred euros.'

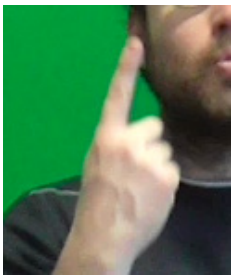
When the demonstrative anaphorically refers to a previously mentioned referent, signers typically use the sign PE. This sign is realised with G handshape and wrist rotation, from supine to prone. PE is shown in isolation below.

PE

Another difference that distinguishes demonstratives from articles is that they can also be produced in isolation, namely without the noun. The pronominal use of demonstratives is addressed in [LEXICON 3.7.1].

3.6.2 Indefinite determiners

Indefinite determiners are used when the addressee is not supposed to know who or what is being talked about. LIS has a singular indefinite article realised with a G or S handshape. The fingertip is oriented upward and the palm usually has a slightly contralateral orientation.



a. ONE(indef)(G)

b. ONE(indef)(S)

It is usually produced in a steady position in an unmarked spatial location. Alternatively, it can be accompanied with a slightly tremoring motion. This articulation correlates with the degree of identifiability of the nominal expression: the more unidentifiable the referent, the broader the tremoring motion. The indefinite article usually co-occurs with facial expression denoting uncertainty, which consists in pulling the corners of the mouth down and slightly raising the eyebrows.

In LIS, the indefinite article ONE(indef) is used to introduce a new referent in the discourse. An example is provided below.

ONE(indef) DEAF IX$_1$ MEET
'I met a deaf guy.'

Like the definite article, the indefinite article ONE(indef) is not obligatory in its contexts. Indeed, the example below is also acceptable without ONE(indef).

DEAF IX$_1$ MEET
'I met a deaf guy.'

It has been observed that the indefinite article is more frequently produced by the middle-aged and older population of LIS signers. On

the other hands, young signers tend to omit the manual sign and express indefiniteness by means of non-manuals (see [SOCIO-HISTORICAL BACKGROUND 4.4] and [SYNTAX 4.1.1.4]).

3.7 Pronouns

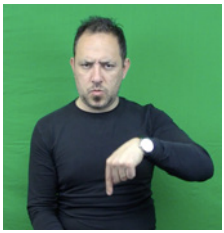
A pronoun is a linguistic element that replaces a noun or a noun phrase in a sentence. As in other languages, pronouns in LIS can be classified into different categories according to their use and semantic contribution. These categories are discussed in detail in the following sections.

3.7.1 Locative and demonstrative pronouns

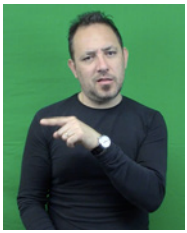
Locative pronouns are used to denote a position in space. In LIS, they are typically realised as pointing signs directed toward the actual (absolute) location in real space or, alternatively, toward a spatial point previously established in the discourse.

IX$_1$ EAT IX(loc)
'I'll eat there.'

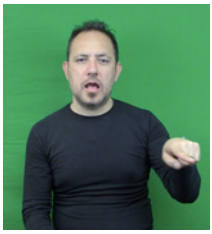
The most frequent realisation of locative pointing signs is with G handshape and downward palm orientation. The extension of the movement of the arm indicates how far the location is from the perspective of the signer. The screenshots below show locative pronouns with different degrees of extension.



a. IX(loc)$_{[proximal]}$
'Here'



b. IX(loc)$_{[contra–distal]}$
'There'



c. IX(loc)$_{[ipsi–distal]}$
'There'

If special emphasis is needed, for instance to contrast two different locations, a repeated movement can be added to the pointing sign. This is shown in the example below.

om
IX(loc)$_a$ PERSON++ CL(5): 'be_many_at_a'.
tp
IX(loc)$_b$ PERSON++ CL(5): 'be_few_at_b'

'There are many people there (location *a*) and few people there (location *b*).'

Demonstratives [LEXICON 3.6.1] are typically used to indicate a referent by using an act of demonstration (i.e. 'this' in English, associated to a pointing in a position close to the speaker). These elements can combine with nouns, thus behaving as nominal modifiers [SYNTAX 4.1.2], or they can be used pronominally, without a noun. In this section, we focus on this second usage. To illustrate, we present below an example containing a demonstrative pronoun.

IX(dem) IX_1 WANT
'I want this.'

Because of their definite nature, demonstrative pronouns in LIS are always headed toward a specific point in the signing space. Non-manually, proximity (i.e. nearness in space) may be marked by wide-open eyes (we), whereas distality (i.e. farness in space) may be signalled by squint eyes (sq). As for the articulation of demonstrative pronouns, there are three possible realisations, which also reflect differences in usage. The most common form is a pointing sign with a straight path movement. Below, we show both the proximal (a) and distal (b) realisation.

a. $\underline{\qquad\qquad\qquad\qquad\text{we}}$
$\text{IX(dem)}_{\text{straight[proximal]}}$

b. $\underline{\qquad\qquad\qquad\qquad\text{sq}}$
$\text{IX(dem)}_{\text{straight[distal]}}$

Pointing signs with straight path movement realise canonical deictic demonstratives, thus referring to entities present in the surrounding extra-linguistic context.

Another possibility is to articulate the pointing sign with wrist pivoting from radial to ulnar and a co-occurring implosive mouth gesture, which is traditionally identified by the gloss PE.

a. $\underline{\qquad\qquad\qquad\qquad\text{[p]}}$
$\text{IX(dem)}_{\text{pivoting[proximal]}}$

b. $\underline{\qquad\qquad\qquad\qquad\text{[p]}}$
$\text{IX(dem)}_{\text{pivoting[distal]}}$

Pointing signs with wrist pivoting realise anaphoric demonstratives, thus referring to entities previously mentioned in the discourse. Demonstratives can be used anaphorically when they point to a location in the neutral space, so they have a deictic component, but by doing so they pick up a position previously associated to a given referent.

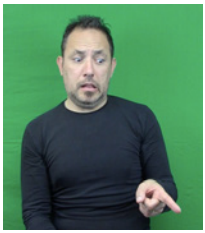
The last type of demonstrative pronoun is a pointing sign with wrist rotation either from prone to supine (a) or vice versa (b).

a. $\text{IX(dem)}_{\text{rotating[ipsi]}}$

b. $\text{IX(dem)}_{\text{rotating[contra]}}$

Pointing signs with wrist rotation are typically used to select a referent between two alternatives. Indeed, they rotate moving from the non-selected to the selected option.

As previously observed with locative pronouns, the extension of the movement of the arm used to articulate demonstrative pronouns show the distance between signer and target. As discussed before, another strategy that signals distance is represented by the non-manuals which can co-occur with the demonstrative pronouns: wide-open eyes and in some cases also tongue protrusion signal proximity (a), while squinted eyes signal distality (b).



tp
we
a. IX(dem)$_{[proximal]}$

sq
b. IX(dem)$_{[distal]}$

Moreover, demonstrative pointing signs may be accompanied by the eye-gaze pointing toward the same direction. This is a further cue that helps the addressee to identify the relevant referent(s) in space.

3.7.2 Personal pronouns

Personal pronouns are used in place of nouns to refer to animate or inanimate entities. In LIS, they are typically realised as pointing signs articulated with G handshape. Such signs can be pointed toward present referents (deictic use) or toward loci in the signing space that have previously been associated with absent referents (anaphoric use).

Personal pronouns in LIS can incorporate grammatical features, such as person, number, clusivity, case, and logophoricity.

In some cases, LIS admits the possibility to omit personal pronouns. For more details, the reader is referred to the section on null arguments [SYNTAX 2.4].

3.7.2.1 Person

Personal pronouns encode the person feature, and hence distinguish between different participant roles in the discourse, such as signer, addressee, and non-addressed participant.

The signer (i.e. first person) is typically referred to by heading the pointing sign realised with ipsilateral palm orientation toward the centre of the chest. Differently from other personal pronouns, first-person pronouns have a constant and stable form, which does not vary according from context to context.

IX$_1$

The addressee (i.e. second person) is typically referred to by pointing toward the locus associated with the addressee. The articulation of this pronoun displays palm sideways orientation and requires the alignment of the pointing sign and the eye-gaze: both elements must point toward the same direction. Note that second-person pronoun does not point toward a fixed direction, rather it depends on the absolute position of the addressee, who is not necessarily in front of the signer, but could be in different positions as well.

IX$_2$

A non-addressed participant (i.e. third person) is typically referred to by pointing toward a locus different from that of the signer and the addressee. Again, this direction is not fixed, rather it depends on the absolute position of the referent (if present in the extra-linguistic context) or the locus associated to the referent in previous discourse. Generally speaking, third-person pronouns are realised with the palm facing sideways and do not display alignment of pointing sign and eye-gaze. This misalignment is shown below.

IX$_3$

However, in deictic uses, signers might sometimes direct a quick eye-gaze toward the present referent, especially in those contexts in which identification is particularly challenging.

eg
IX$_3$

3.7.2.2 Number

Personal pronouns in LIS take on different forms if more than one referent is involved.

Plural marking is realised by modifying the movement associated with the pointing signs. Two different plural forms are attested: i) a collective one, characterised by straight or circular movement, and ii) a distributive one, realised by heading the pointing sign toward multiple space points lying along a line. These options are illustrated below for each plural pronoun.

The first-person plural pronoun, in its collective form (a), starts and ends in correspondence with the signer's locus and typically displays a circular movement.

a. IX$_{1pl\text{-}coll}$

b. IX$_{1pl\text{-}distr}$

The second-person plural pronoun, in its collective form, may be articulated: with sideways palm orientation and ipsilateral straight movement (a), with downward palm orientation and ipsilateral straight movement (b), or with a circular movement (c).

a. IX$_{2pl\text{-}coll}$ (sideways palm + straight movement)

b. IX$_{2pl\text{-}coll}$ (downward palm + straight movement)

c. IX$_{2pl\text{-}coll}$ (circular movement)

d. IX$_{2pl\text{-}distr}$

The third-person plural pronoun, in its collective form, may be articulated: with sideways palm orientation and ipsilateral straight movement (a), with downward palm orientation and ipsilateral straight movement (b), or with a circular movement (c).

a. IX$_{3pl\text{-}coll}$ (sideways palm + straight movement)

b. IX$_{3pl\text{-}coll}$ (downward palm + straight movement)

c. IX$_{3pl\text{-}coll}$ (circular movement)

d. IX$_{3pl\text{-}distr}$

Another form of number marking is realised by changing the handshape of the pointing sign according to the number of participants involved. The dual form (i.e. when the pronoun refers to two entities) displays some phonological peculiarities, since it is realised with a repeated path movement and incorporates different handshapes according to the type of participants involved: handshape L with sideways palm orientation is used for first person plus non-first person (a), whereas handshape V with upward palm orientation is used for two non-first persons (b).

a. IX_{1+3}
'The two of us'

b. IX_{2a+2b}
'The two of you'

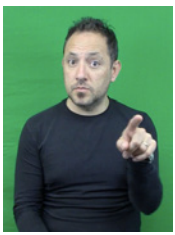
When the pronoun refers to three, four, or five referents, numeral incorporation [LEXICON 3.10] occurs with no distinction for participant type with palm facing upward. Some examples are provided below.

a. IX_{2pl}^THREE
'The three of you'

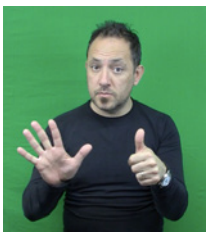
b. IX_{1pl}^FOUR
'The four of us'

c. IX_{3pl}^FIVE
'The five of them'

Numeral incorporation within the personal pronoun is attested in LIS from two to five. If more than five participants are involved, signers tend to sequentially combine the plural form of the pronoun and the relevant numeral.



IX_{2pl}



SIX

'The six of us'

3.7.2.3 Clusivity

Plural personal pronouns can encode clusivity distinction, thus signalling the inclusion or the exclusion of the addressee or any other referent salient in the discourse. Inclusive and exclusive forms differ mainly in terms of location and non-manuals.

Inclusive pronouns are typically characterised by unmarked location and neutral shoulder position. The movement produced in these signs is at some point directed toward the locus associated with the included referent. A couple of examples of inclusive pronouns are shown below.

a. $\text{IX}_{\text{1pl-incl}}$

'We all' (the addressee is included)

b. $\text{IX}_{\text{1+2-incl}}$

'We two' (the addressee is included)

Exclusive pronouns highlight the non-involvement of the addressee or a salient referent. They are typically articulated in a marked location, such as on the left/right side of the signing space, which crucially is far from the locus associated with the excluded referent. The shoulders are directed toward the opposite direction of this marked location.

a. $\text{IX}_{\text{1pl-excl[left]}}$

'We all' (the addressee is not included)

b. $\text{IX}_{\text{1+2-excl[right]}}$

'We two' (the addressee is not included)

3.7.2.4 Case

Some LIS signers acknowledge the possibility to use a pronoun which is phonologically homophonous to the sign PERSON. It is realised with a curved open L handshape combined with downward movement. From a semantic point of view, this sign (glossed here as IX_PERSON) is compatible only with single entities and, in particular, with human referents.

Interestingly, IX_PERSON appears as a case-marked pronoun since it can mark the object only. It is compatible with first, second, and third person objects. Another restriction is that it is typically used in combination with plain verbs [LEXICON 3.2.1], such as BE_FAMILIAR (a)

and REMEMBER, and with adjectives selecting argument(s) [SYNTAX 5.2], such as PROUD (b).

a. IX_1 IX_2_PERSON BE_FAMILIAR
'I know you.'

b. IX_2 IX_1_PERSON PROUD
'You are proud of me.'

3.7.2.5 Gender

Personal pronouns in LIS do not mark gender distinctions. The same linguistic element (i.e. pointing signs) is used to refer to male and female human referents.

Also, pointing signs do not mark distinctions based on animacy, so they do not differ if the referent is animate, such as a person or a cat, or inanimate, such as a laptop or a chair.

3.7.2.6 Honorific pronouns

The possibility to encode social distinctions in LIS pronouns seems to be subject to some variation [PRAGMATICS 1.1.2].

Some LIS signers tend to articulate personal pronouns with the extended index finger regardless of the status of the referent. This is shown in the two examples below: a regular pointing pronoun is used to refer to a high-status addressee in (a) and a high-status non-addressed referent in (b).

y/n
a. TOMORROW PRESENT IX_2
'Will you be here tomorrow?' (to the boss)

b. IX_3 BOSS POSS_1
'He is my boss.'

As we can observe, the particular communicative setting does not trigger any modification in the articulation of the personal pronoun. Indeed, no change occurs in the handshape or location of the sign.

However, according to other LIS signers, it is possible to mark the high social status of a referent by articulating the personal pronoun with unspread 5 handshape (shown below), rather than G handshape.

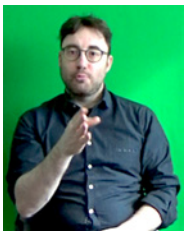


Figure 1 Unspread 5 handshape used as honorific form

3.7.2.7 Logophoric pronouns

Logophoric pronouns are used to mark co-referentiality with an individual whose point of view is being adopted. LIS does not have a specific set of pronouns conveying logophoricity.

However, singular pronouns can function as logophoric pronouns in the context of role shift [SYNTAX 3.3.3]. When role shift is not produced, IX$_1$ functions as a regular first-person pronoun referring to the signer. In the example below, the person who bought the house is the signer himself.

MARIA REVEAL IX$_1$ HOUSE BUY DONE
'Maria revealed that I bought a house.'

On the contrary, when IX$_1$ is used under role shift, it is interpreted as referring to a different referent, mentioned in the discourse. This shift of reference is signalled by non-manuals co-articulated with the pronoun (here glossed as 'rs'), such as change in the direction of eye gaze, body shift, and altered facial expressions. In the example below, IX$_1$ does not refer to the signer, rather it is co-referential with the individual whose perspective is adopted. Therefore, the house was not bought by the signer, rather by the referent of the matrix subject.

rs
IX$_3$ SAY IX$_1$ HOUSE BUY DONE
'She said: "I did buy the house."'

From an articulatory point of view, it is worth noting that the first-person pronoun referring to the signer and the one used logophorically have the same phonological shape.

3.7.3 Possessive pronouns

Possessive pronouns can be used in two ways: i) as proform for the possessor or ii) as proform for both the possessor and the thing possessed. In the former case, so-called attributive possessives accompany and modify a noun; in the latter, so-called substantival possessives function as independent nominal elements. Note that the two usages do not correspond to two distinct sets of lexical forms in LIS. Therefore, this distinction is not relevant to the present section. To read more about the distribution of attributive and substantival possessives, see [SYNTAX 4.2].

Possessive pronouns in LIS can be realised with two different handshapes: POSS(G) and POSS(5). In some contexts, some LIS signers may express possession by means of regular personal pronouns [LEXICON 3.7.2] as well. In this section, we focus on POSS(G) and POSS(5), which differ both phonologically and semantically.

POSS(G) is articulated with G handshape and repeated movement directed toward the locus associated with the possessor. The example below shows a first-person possessive.

POSS(G)$_1$
'Mine'

Two semantically equivalent variant forms are available for second-person and third-person possessor. The first option is characterised by downward palm orientation and wrist pivoting from radial to ulnar, as shown below.

a. POSS(G)$_{2\text{-pivoting}}$
'Yours'

b. POSS(G)$_{3\text{-pivoting}}$
'His/hers'

The second possibility is characterised by upward metacarpus orientation, does not involve any wrist movement, and heads the ulnar part of the hand toward the possessor, as shown below.

a. POSS(G)$_{2\text{-non-pivoting}}$
'Yours'

b. POSS(G)$_{3\text{-non-pivoting}}$
'His/hers'

The possessive realised with 5 handshape, POSS(5), is usually perceived by signers as a more marked type of possessive and it is used to remark the concept of ownership. For more details on the usage of the two types of possessives in context, the reader is referred to [SYNTAX 4.2]. The sign POSS(5) is realised with unspread 5 handshape articulated with abducted thumb and repeated movement directed toward the locus associated with the possessor. The palm of the hand is oriented toward the same locus. The three examples below show POSS(5) referring to a first-person (a), a second-person (b), and a third-person possessor (c).

a. POSS(5)$_1$
'Mine'

b. POSS(5)$_2$
'Yours'

c. POSS(5)$_3$
'His/hers'

Both POSS(G) and POSS(5) are defective possessives since they lack plural forms. The meanings of *ours*, *yours*, and *theirs* are conveyed by suppletive forms, such as the first-person, second-person, and third person plural pronouns [LEXICON 3.7.2.2]. Alternatively, the movement component of the possessive can be reduplicated at distinct locations lying along an arc. This articulation conveys not only numerousness, but also distributivity. An illustrative example is provided below.

POSS(5)$_{\text{2pl-distr}}$

3.7.4 Reflexive and reciprocal pronouns

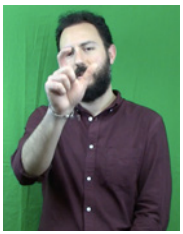
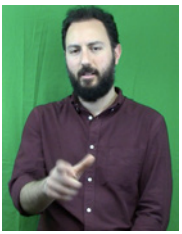
A reflexive relation and a reciprocal relation both involve co-referentiality.

On the one hand, reflexive pronouns are used to indicate that the object in a sentence refers to the same person or thing denoted by the subject of the same sentence. In LIS, reflexive meaning can have two different realisations, which are equivalent from a semantic point of view.

The first realisation, glossed here as IX_PERSON, is a sign phonologically similar to the sign PERSON. It consists in a personal pronoun articulated in the locus associated with the antecedent. If referring to the first person (IX$_1$_PERSON), it is realised on the signer's body with inward palm orientation.

IX$_1$_PERSON
'Myself'

If referring to the second or third person, it is articulated with outward/sideward palm orientation and in correspondence with the locus associated with the second or third person. To illustrate, we show below the articulation of IX$_2$_PERSON.

IX$_2$_PERSON
'Yourself'

For the sake of clarity, in the example below, we show the use of the reflexive pronoun IX$_3$_PERSON in context.

WOMAN IX$_a$ PAINT IX$_{3a}$_PERSON
'The woman is painting herself.'

For the reflexive reading to emerge, it is important that the pronoun IX_PERSON is realised in the same locus of the antecedent, i.e. the locus associated with the pointing sign accompanying the body-anchored noun WOMAN. If the two elements, pronoun and antecedent, are not produced in the same location in space, then a non-reflexive interpretation emerges ('the girl is painting her/him').

The second strategy that can be used to convey reflexive meaning in LIS consists in a body-anchored reflexive pronoun, here glossed as SELF.

SELF
'Myself/yourself/himself/herself'

We show below the use of the reflexive pronoun SELF in context.

IX_a WOMAN PAINT SELF
'The woman is painting herself.'

The reflexive pronoun, here glossed as SELF, is articulated with a V handshape performing a single or repeated movement toward the signer's chest. Note that SELF does not change its phonological form depending on the person or number features. This is shown in the examples below: SELF is compatible with first-person (a), non-first person (b), and distributive plural referents (c).

a. IX_1 LOVE SELF
'I love myself.'

b. IX_3 LOVE SELF
'She loves herself.'

c. EACH PAINT SELF
'Each of them is painting himself.'

The reflexive pronoun SELF cannot be used as emphatic pronoun to put emphasis on the relevant referent.

Reciprocity, on the other hand, requires a plural referent (i.e. two or more entities). A reciprocal relation signals that the individuals in the relation are at the same time the agent and the undergoer of the action (e.g. 'we visit each other'). When possible, in LIS, reciprocity is marked on the verb. For a discussion of reciprocal markers, see [MORPHOLOGY 3.1.3]. However, not all verbs behave alike: the class of plain verbs [LEXICON 3.2.1] shows particular articulatory restrictions and is not likely to mark reciprocity morphologically [SYNTAX 2.1.3.4].

For this reason, these verbs can be combined with a reciprocal pronoun, here glossed as EACH_OTHER. It is a two-handed sign realised with curved open L handshape and an alternating back-and-forth movement in the neutral space.

IX_{1+2} UNDERSTAND EACH_OTHER
'You and I understand each other.'

3.7.5 Interrogative pronouns

Interrogative pronouns are used in *wh*- questions [SYNTAX 1.2.3]. They are proforms that replace the information we are asking about.

LIS displays a large repertory of interrogative pronouns. Although some of them show geographical variation, this section includes the most common interrogative signs.

Table 1 Interrogative pronouns

WHO	WHAT/HOW	HOW
WHERE	**WHEN**	**WHICH**

HOW_MANY

WHY

Because of their interrogative nature, these signs are usually accompanied by furrowed eyebrows. It is interesting to observe that if some of these signs are not combined with these special non-manuals they display a change in meaning. For instance, if the last sign of the table above (WHY) is associated with neutral facial expressions, it does not mean 'why', rather 'because'. It is worth noting the special status of the sign glossed above as WHEN. In the literature, this sign is often known as $Q_{artichoke}$. From an articulatory point of view, it is produced with a flat closed 5 handshape combined with a downward repeated movement of the forearm or, in its distalised form, a repeated wrist nodding from palm to back. $Q_{artichoke}$ is a particular interrogative pronoun in that it can be used as a lexical variant for all *wh-* signs. To illustrate, it can replace WHO (a), WHAT (b), and WHY (c).

a. ARRIVE $Q_{artichoke}$
'Who arrived?'
(Branchini et al. 2013, 180)

b. HAPPEN $Q_{artichoke}$
'What happened?'
(Branchini et al. 2013, 180)

c. URGENT $Q_{artichoke}$
'Why was it urgent?'
(Branchini et al. 2013, 180)

Given this polysemy of $Q_{artichoke,}$ LIS signers usually combine this sign with partial or total mouthing [PHONOLOGY 1.5.2], namely the voiceless reproduction of the corresponding Italian *wh-* words. For example, when $Q_{artichoke}$ replaces WHY, it might co-occur with the mouthing [p] (initial consonant included in *perché*, 'why').

3.7.6 Relative pronouns

Although, no relative pronoun in a strict sense can be found in LIS, a sign is typically used to mark relative clauses. It is traditionally glossed PE.

PE

This sign functions as a determiner [LEXICON 3.6.1]. PE can appear in restrictive relative clauses [SYNTAX 3.4.2.1] to univocally mark the referent that the relative clause predicate something about. In this syntactic construction, PE agrees with the head of the relative construction by being produced in the locus in space associated with it.

3.7.7 Indefinite pronouns

Indefinite pronouns are typically used when the identity of the referent is unknown to the signer. For more details on indefiniteness, see [PRAGMATICS 1.3].

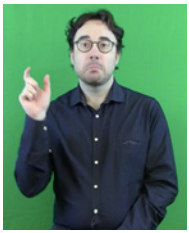
In LIS, three indefinite pronouns are available: SOMETHING, SOMEONE, and the sign PERSON accompanied by particular non-manuals. The sign SOMETHING is used for non-human unknown referents. It is a balanced two-handed sign that can undergo weak hand drop [PHONOLOGY 3.1.4].

SOMETHING

The indefinite pronoun SOMEONE is compatible with human unknown referents. Phonologically, this sign is similar to cardinal ONE since it is articulated with extended index finger. This handshape is combined with an additional circular movement, which is the same observed in the articulation of SOMETHING.

SOMEONE

Another sign that can be used to refer to a human unknown referent is PERSON accompanied by special non-manuals conveying low referentiality, such as raised eyebrows, chin up ('cu'), and mouth corners down ('md').



re
md
cu
PERSON
'Someone'

For more details on the use of this sign, the reader is referred to [PRAGMATICS 1.5].

3.8 Adpositions

To be developed.

3.8.1 Manual adpositions

To be developed.

3.8.2 Adpositions and spatial relations

To be developed.

3.9 Conjunctions

Conjunctions are parts of speech that connect two or more elements, such as single signs, phrases, and clauses.

This section describes how LIS connects signs within a clause and how clauses are conjoined through manual and non-manual markers. In the following sections, three types of conjunctions are illustrated: coordinating conjunctions [SYNTAX 3.9.1], subordinating conjunctions [SYNTAX 3.9.2], and correlative conjunctions [SYNTAX 3.9.3]. For more information on how clauses are conjoined, the reader is referred to the section on coordination and subordination [SYNTAX 3].

3.9.1 Coordinating conjunctions

Coordinating conjunctions paratactically join signs and main clauses. LIS has two strategies to conjoin signs and clauses: i) through the use of coordinating conjunctions and ii) through non-manual markings and the use of signing space. In this section, both strategies will be described. The equivalent of the English coordinating conjunction 'and' in LIS is the manual item glossed PLUS.

PLUS

In the example below, the signs PASTA and CAKE are conjoined through the manual sign PLUS.

MARIA PASTA PLUS CAKE PREPARE
'Maria prepares pasta and a cake.'

The marker used in (adversative) coordination is the sign BUT.

BUT

In the following example, the sign BUT conjoins two clauses.

IX_2 DECISION $POSS_2$ IX_1 ACCEPT BUT REASON $_2EXPLAIN_1$ MUST
'I accept your decision, but you must explain me the reason.'

The sign glossed OR is commonly used to connect signs and clauses in disjunctive coordination.

OR

In the examples below, two signs are connected through the sign OR. The manual sign OR can be produced between the two conjuncts (a), at the end of the two conjuncts (b), or before each conjunct (c).

a. IX$_2$ TOY CL(unspread curved open 5): 'move_toy' OR VIDEOGAME CHOOSE

'Choose a toy car or a videogame.'

b. LAURA MATTEO PAOLO OR++ INVITE

'Laura invites Matteo or Paolo.'

c. SON POSS$_1$ OR CAR CL(unspread curved open 5): 'move_toy' OR TOY VIDEOGAME CHOOSE MUST

'My son has to choose a toy car or a videogame.'

Alternatively, coordination of constituents and clauses in LIS can also be carried out through juxtaposition of coordinated signs and clauses without the use of manual conjunctions. Very often, non-manual markings such as a change in body and head posture, rhythmic pauses, oral components, eye blink and raised eyebrows are the only means used in coordination.

In the following example, the signs SALAD and PASTA are conjoined within the clause only through prosodic means: a change in body lean (bl-left, bl-right) during the production of the two conjoined signs that are produced in different locations of the signing space, a signing pause and eye blink occurring between the two conjoined signs, and a head nod (hn) produced after each conjoined sign is realised.

	bl-right	bl-left
	hn	hn
MARIA	SALAD$_a$	PASTA$_b$ PREPARE

'Maria prepares salad and pasta.'

In the example below, two clauses are conjoined without the manual marker BUT, solely through the following prosodic means occurring between the two clauses: a pause in the signing stream, backward head tilt (ht-b), and raised eyebrows (re).

re
ht-b
L-U-C-A_a IX_{3a} PARTY GO DANCE LIKE NOT

'Luca goes to the party, but he doesn't like to dance.'

The following example shows the possibility of connecting two signs without the manual conjunction OR. Coordinating conjunctions are produced non-manually: the conjoined signs MATTEO and PAOLO are produced in two different locations within the signing space (signalled in the glosses by different indexes), following their production, a slight backward head tilt (ht-b) and small head shakes (hs) between the two referential locations are produced.

ht-b
top hs
LAURA MATTEO PAOLO INVITE MUST

'As for Laura, she must invite Matteo or Paolo.'

Summing up, LIS displays manual signs of conjunction to paratactically conjoin signs and clauses, but it can also do so only through the use of non-manual markings. For more information on coordination at the clausal level, see [SYNTAX 3.1].

3.9.2 Subordinating conjunctions

Subordinating conjunctions may be employed to link the main clause to the embedded clause in a complex sentence. LIS has manual elements that are used as subordinators, but frequently realises subordination by means of non-manual markers and prosodic structure only.

Not all embedded clauses are introduced by subordinating conjunctions. Complement clauses [SYNTAX 3.3.2] are simply juxtaposed to the main clause, as illustrated below.

bl-left
GIANNI HOPE MARIA LEAVE

'Gianni hopes Maria will leave.'

Some adverbial clauses in LIS are introduced by manual markers. Below we report some examples.

Temporal clauses [SYNTAX 3.5.2] are introduced by the manual marker WHEN:

cd
re
WHEN IX_1 PADUA ARRIVE IX_1 $_1TEXT_2$
'When I arrive in Padua, I will send you a message.'

Conditional clauses [SYNTAX 3.5.1] are introduced by the manual marker IF.

cd
re
IF RAIN IX_1 GO_OUT NOT
'If it rains, I don't go out.'

Manner clauses [SYNTAX 3.5.4] are introduced by the manual marker IDENTICAL.

IX_2 HOUSE BUILD IDENTICAL TIME PAST
'You built the house as they used to do in the past.'

Concessive clauses [SYNTAX 3.5.7] are introduced by the manual marker SAME.

sq
re
MAN BLIND SAME PASTA COOK BE_ABLE
'Although the man is blind, he can cook pasta.'

Reason clauses [SYNTAX 3.5.5] are introduced by the manual marker REASON:

TRAM ARRIVE LATE REASON SNOW++ CL(spread 5):
'snow_accumulate'
'The tram arrived late because it continued to snow, and the snow accumulated.'

Purpose clauses [SYNTAX 3.5.6] are introduced by the manual marker GOAL.

MARIA STORE GO GOAL FOOD BUY++
'Maria goes to the store in order to buy food.'

However, some adverbial subordinate clauses in LIS may also be marked by non-manual markers only. This is the case of conditional clauses (a) temporal clauses (b) and concessive clauses (c).

re
a. TOMORROW RAIN THEATRE CANCEL
'If it rains tomorrow, the performance will be cancelled.'

cd
re
b. IX_2 $_2TEXT_1$ IX_1 DRIVE
'When you sent me the text message, I was driving.'

re
c. IX_a GABRIELE IX_a MONTH MARCH IX_{3a} ENGAGED $WEDDING_b$ $POSS_1$ $_aCOME_b$
'Although Gabriele is busy in March, he will come to my wedding.'

For more information on clausal subordination, the reader is referred to subordination [SYNTAX 3].

3.9.3 Correlative conjunctions

Correlative conjunctions establish a relation between two equal grammatical units, by conjoining similar words or phrases in a sentence.

In LIS, both manual and non-manual markers are employed to realise correlative conjunctions.

In order to exclude two alternatives, signers produce the first conjoined phrase at one side of the signing space, the second conjoined phrase on the opposite side of the signing space and a negation marker at the end of the sentence, as in (a) and (b).

neg
a. CAR_a $MOTORBIKE_b$ IX_1 BUY NOTHING
'I won't buy neither a car nor a motorbike.'

top neg
b. SUMMER NEXT L-U-C-A_a IX_a SEA_b $MOUNTAIN_c$ IX_{3a} GO NOT
'Next summer, Luca won't go neither to the sea nor to the mountain.'

Alternatively, the two conjoined phrases are negated by two negative markers at the end of the sentence, each one referring to each conjoined phrase and produced in the corresponding area of the signing space, as shown below.

bl-left bl-right neg neg
IX$_1$ COURSE SWIMMING$_a$ FRENCH$_b$ NEG_O$_b$ NEG_O$_a$

'I'm attending neither the French nor the swimming course.'

The English equivalent of the correlative conjunctions *not only… but* is produced in LIS by manual markers, as shown below.

neg
A-N-N-A SWEATER ONLY NOT ALSO TROUSERS BUY DONE

'Anna hasn't bought only a sweater, but also a pair of trousers.'

When presenting two alternative options, LIS has at least two possibilities. The first option is the repetition of the manual sign OR before each conjoined phrase, together with the non-manual marking of lips down at the corners and/or the oral production [o], corresponding to 'or' in Italian. Within this option, each conjunct is produced in a different area of the signing space with the body leaning on each side of the signing space, as shown below:

bl-left bl-right
EVENING IX$_1$ OR$_a$THEATRE$_a$ OR$_b$ RESTAURANT$_b$ IX$_1$ GO

'Tonight, I will go either to the theatre or to the restaurant.'

In the second option, each conjunct is produced in a different signing space separated by the manual sign OR. The manual sign OR is repeated twice at the end of the sentence each one referring to each conjunct, thus produced in the same signing space, with the body leaning down at each side, as shown in the following example.

bl-right bl-left
IX$_1$ PRINTER$_a$ COLOUR$_a$ IX$_a$ OR IX$_b$ COMPUTER$_b$ IX$_1$ $_a$CHOOSE$_1$
OR IX$_{3b}$ OR IX$_{3a}$

'I choose either the colour printer or the computer.'

Lastly, to produce the equivalent of the English correlative conjunctions *both… and*, LIS connects the two conjuncts through the manual marker IX$_{3a+3b}$ accompanying each conjunct with a side body lean towards opposite directions, as shown in the following example.

bl-left bl-rigth
IX$_1$ PHONE$_a$ CAMERA$_b$ IX$_{3a+3b}$ EXIST

'I have both the mobile and the camera.'

3.10 Numerals and quantifiers

Numerals and quantifiers are used to express the number or amount of the set denoted by the noun. While numerals indicate the precise number, quantifiers are non-numeric items that provide a relative or indefinite indication of quantity.

3.10.1 Numerals

Numerals can be classified into three categories: cardinal, ordinal, and distributive numerals. LIS exhibits all the three categories.

Cardinals are used to specify the number of entities referred to and answer the question 'How many?'. In the example below, the cardinal numeral THREE is used to specify the exact number of suitcases the signer noticed.

AIRPORT INSIDE SUITCASE THREE IX$_1$ SEE

'At the airport, I noticed three suitcases.'

Ordinals combine a numerical quantity with order. They are employed to rank entities according to a certain order and answer the question 'Which in order?'. In the example below, the ordinal numeral THIRD is used to identify one particular suitcase in an ordered set.

SUITCASE THIRD IX$_1$ TAKE

'I grabbed the third suitcase.'

Distributives combine a numerical quantity with distribution. They indicate how a certain quantity is distributed over some entities and answer the question 'How many each?'. In the example below, the distributive numeral THREE$_{distr}$ indicates how many suitcases each person is allowed to bring on the airplane.

SUITCASE THREE$_{distr}$ MAXIMUM BRING BE_ABLE

'You can bring up to three suitcases each.'

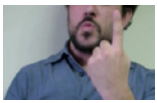
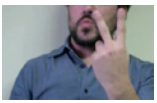
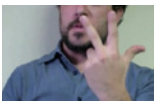
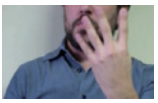
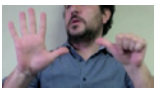
For a discussion about the syntactic distribution of numerals within the nominal phrase see [SYNTAX 4.3].

3.10.1.1 Cardinal numerals

Cardinal numerals in LIS represent a two-handed system. This means that both manual articulators can be employed to express cardinals. The numerical base of this system is 10, therefore cardinals higher than 10 are built combining the handshapes of numerals from 1 to 10 with special movement patterns. In this section, we provide a general description of the cardinal system in LIS. It is worth pointing out that a certain degree of variation is attested. For the sake of simplicity, we report the most frequent patterns observed.

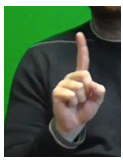
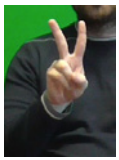
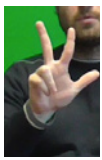
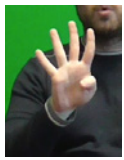
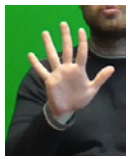
In cardinals from 1 to 10, LIS signers extend the corresponding number of fingers with outward palm, as shown below. Contrary to cardinals from 11 to 19, these signs are static in that they lack movement. Cardinals from 1 to 5 are articulated with the dominant hand facing the signer's body, whereas cardinals from 6 to 10 require the use of both hands (the non-dominant hand always realises the 5 handshape) and outward palm orientation.

Table 2 Cardinals from 1 to 10

ONE 	TWO 	THREE 	FOUR 
FIVE	SIX 	SEVEN	EIGHT
NINE	TEN		

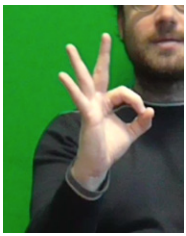
Variation is attested at some degree. For cardinals from 1 to 5, some signers use an outward palm orientation.

Table 3 Cardinals from 1 to 5 (variant forms)

				
ONE	TWO	THREE	FOUR	FIVE

Moreover, some signers produce the cardinal ONE extending the thumb (handshape S), rather than the index finger (handshape G), and articulate the cardinal TWO extending thumb and index finger (handshape L), rather than index and middle finger (handshape V).

Cardinal 0 is usually realised with handshape F, as shown below.



ZERO

Cardinals from 11 to 19 display different realisations, which vary according to the geographical area. One of the most widespread patterns consists in the combination of the handshapes from 1 to 9 with a particular type of orientation change, pivoting [PHONOLOGY 1.3.2]. Specifically, finger orientation repeatedly changes from radial to ulnar. Two examples are provided below.

a. THIRTEEN

b. SEVENTEEN

Notice that in cardinals from 11 to 15 the palm has contralateral orientation, as in (a), whereas in cardinals from 16 to 19 the palm is oriented toward the signer's body, as in (b).

Tens (20, 30, etc.) are obtained combining handshapes from 2 to 9 with finger bending. In some cases, two options are available: bending all fingers (a) or bending the index finger only (b).

a. FORTY (all fingers bent)

b. FORTY (index finger bent)

In tens from 60 onwards, finger bending involve the dominant hand only.

SIXTY

In the specific case of 60, another possible realisation is attested: the dominant hand can articulate the two digits sequentially (i.e. 6 and 0) with a change in palm orientation.

SIX^ZERO
'Sixty'

In cardinals from 21 to 99 (with the exclusion of tens), LIS signers articulate the individual digits in a sequential way, as they appear in writing. For example, in the cardinal 24 signers produce TWO first, followed by FOUR with a very short transition.

TWO^FOUR
'Twenty-four'

The transitional movement from one digit to the other may involve a slight ipsilateral shift in the signing space (especially when the two digits are identical, as in 33).

THREE^THREE
'Thirty-three'

Note that in cardinals from 61 to 65, from 71 to 75, from 81 to 85, and from 91 to 95, signers usually realise an orientation change between the two digits, namely wrist rotation from prone to supine [PHONOLOGY 1.3.2]. To illustrate, in cardinal 62 the dominant hand exhibits a prone orientation in SIX and a supine orientation in TWO.

SIX^TWO
'Sixty-two'

In hundreds (100, 200, etc.), the numeral handshape is combined with an ipsilateral shift in the signing space and simultaneous finger bending.

THREE^HUNDRED
'Three hundred'

In hundreds involving two hands (600, 700, 800, and 900), the ipsilateral shift affects both hands, whereas finger bending affects the dominant hand only.

EIGHT^HUNDRED
'Eight hundred'

In thousands (1000, 2000, etc.), the relevant handshape is combined with an orientation change, namely nodding from back to palm [PHONOLOGY 1.3.2]. This secondary movement can be either single or repeated.

THREE.THOUSAND
'Three thousand'

In thousands articulated with two hands (6000, 7000, 8000, and 9000), the orientation change applies to both hands.

EIGHT.THOUSAND
'Eight thousand'

Thousands higher than 10,000 usually require the articulation of a sign expressing the thousand amount in the end. The THOUSAND sign is realised with a bent 5 handshape moving downward. To illustrate, we show 100,000 below.

HUNDRED THOUSAND
'One hundred thousand'

To express millions, LIS employs the sign MILLION, which is an asymmetric two-handed sign. To illustrate, we show 1,000,000 below.

ONE MILLION
'One million'

In the end, we illustrate how billions are expressed in LIS. The sign BILLION is realised through the 5 handshape displaying downward palm orientation, and forward linear movement. The fingers can ei-

ther lack secondary movement, as in (a), or display a wiggling movement, as in (b).

a. ONE BILLION (no secondary movement)
'One billion'

b. ONE BILLION (wiggling movement)
'One billion'

The position of numerals vis-à-vis the noun is described in [SYNTAX 4.3.1].

Like other sign languages, LIS allows for numeral incorporation. This means that a cardinal handshape (usually from 1 to 5, in some cases from 1 to 10) can be incorporated into a sign. This sign can belong to different categories: i) pronouns, ii) nouns referring to time or iii) classifiers.

As for pronouns [LEXICON 3.7], numeral incorporation can apply to first-, second- and third-person plural pronominal forms. In the sign IX_{1pl}^THREE, the dominant hand moves in a circular fashion and the path movement is close to the signer's body: this indicates that the pronoun includes the signer and two addressees.

IX_{1pl}^THREE
'The three of us'

In IX_{2pl}^THREE, the hand moves in a location far from the signer's body and is aligned with the direction of the eye-gaze: this indicates that the pronoun includes three addressees and excludes the signer.

IX_{2pl}^THREE
'The three of you'

In IX_{3pl}^THREE, the dominant hand moves in a location far from both the signer's body and the trajectory of the eye-gaze: this indicates that the pronoun includes three individuals that are neither the signer nor the addressees.

IX_{3pl}^THREE
'The three of them'

The upper limit of numeral incorporation with pronoun signs is 5.

As for nouns referring to time, numerals can be incorporated into the signs HOUR, DAY, MONTH, and YEAR. To illustrate, we show below

the sign MONTH (a) and the sign MONTH^TWO (b), which incorporates the cardinal handshape for 2 into the sign MONTH.

a. MONTH

b. MONTH^TWO
'Two months'

Numeral incorporation with the sign MONTH is possible up to 10. Note that up to 5, incorporation affects the dominant hand only, which performs an inward arc movement. In these forms, the non-dominant hand does not move and is used as in the citation form of MONTH. On the contrary, from 6 to 10, both hands are used to articulate the numeral handshape and they both move in an inward arc.

MONTH.EIGHT
'Eight months'

In the case of the sign DAY, the upper limit of numeral incorporation is 5. We show below the base form of the sign (a) and an example of numeral incorporation, DAY^THREE (b). In the incorporated sign, the upward movement does not change, while the handshape reflects the relevant numeral.

a. DAY

b. DAY^THREE
'Three days'

One of the variant forms for 'year' is realised with S handshape displaying an ipsilateralward arc movement in the neutral space (a). This sign allows for numeral incorporation from 1 to 10, as exemplified in (b) and (c).

a. YEAR

b. YEAR^THREE
'Three years'

c. YEAR^EIGHT
'Eight years'

Another possibility is to incorporate the numeral handshape into a classifier [MORPHOLOGY 5]. For example, THREE can be incorporated into a whole-entity classifier for upright person.

CL(3): 'upright_individuals_come'
'Three people came to me.'

In this case, the upper limit of numeral incorporation is 5.

3.10.1.2 Ordinal numerals

Ordinal numerals in LIS employ the same handshapes selected by cardinal numerals. The two classes are distinguished by absence or presence of movement: cardinals from 1 to 10 do not display any particular movement, whereas ordinals from 1st to 10th require a wrist rotation from prone to supine (see the section on secondary movement [PHONOLOGY 1.3.2]). To illustrate, we show a one-hand ordinal, SECOND (a), and a two-hand ordinal, EIGHTH (b).

a. SECOND

b. EIGHTH

The phonological form (movement, location, and absolute orientation) of ordinals might slightly vary according to the kind of the ranked entity (e.g. sequences, winning positions, railway platforms, etc.). For example, if SECOND is used to refer to the second floor of a building, the palm is usually oriented outward and the movement is upward.

$\text{SECOND}_{\text{up}}$
'Second floor'

If SECOND is used to refer to the second row in a theatre, it is usually signed with upward palm orientation and inward repeated movement.

$\text{SECOND}_{\text{back}}$
'Second row (in a theatre)'

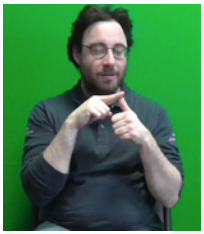
Differently from the previous cases, SECOND in competition ranking is usually articulated with inward palm orientation and with a downward repeated movement.

RANKING IX$_1$ SECOND$_{down}$
'In the ranking, I am in second position.'

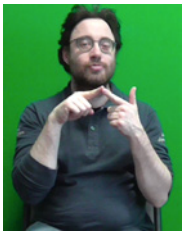
Moreover, cardinals constitute a potentially unlimited class of items, whereas ordinals constitute a defective class since it is limited to ten items, from FIRST to TENTH. Ordinals higher than 10th are expressed in LIS with the equivalent cardinals together with the ranked entity. For example, in a competition, the eleventh position is expressed through the cardinal ELEVEN and the sign PLACE.

RANKING IX$_1$ ELEVEN PLACE
'In the ranking, I hold the eleventh position.'

Another common strategy to keep track of ordinal numbering in signed discourse is represented by list buoys (see [LEXICON 1.2.3] and [PRAGMATICS 2.2.3]). For example, a signer is talking about his last summer trip and lists the cities he visited (in order, Paris, Madrid, and Barcelona). The ordinal numbering (first, second, third) can be indicated by the non-dominant hand, as shown below.



a. dom: IX$_{[thumb]}$
n-dom: ONE
'First, …'



b. dom: IX$_{[index]}$
n-dom: TWO
'Second, …'

c. dom: $\text{IX}_{[\text{middle}]}$
n-dom: THREE
'Third, …'

List buoys usually range from first to fifth.

3.10.1.3 Distributive numerals

Like ordinals, distributive numerals in LIS make use of the same handshapes selected by cardinal numerals. These handshapes are associated with reduplicated movement in the signing space: the numeral is repeated in different locations and each instance corresponds to a set of entities. In the example below, $\text{TWO}_{\text{distr}}$ associated with the noun SANDWICH indicates that there are multiple sets of two sandwiches. From an articulatory perspective, there are two semantically equivalent possibilities: each reduplication can either be marked by a slight forward movement, as in (a), or be unmarked for movement, as in (b). In both cases transition movements are produced between reduplications.

a. SANDWICH $\text{TWO}_{\text{distr}}$ EXIST (with repeated forward movement)
'(They) have two sandwiches each.'

b. SANDWICH $\text{TWO}_{\text{distr}}$ EXIST (without repeated forward movement)
'(They) have two sandwiches each.'

3.10.2 Quantifiers

Quantifiers are lexical signs expressing different types of non-numerical quantities. In this section, we describe some of the quantifiers attested in LIS.

It is important to note that they co-occur with a noun, but some of them can also be used pronominally. For example, the sign ALL

can modify the plural noun PERSON++, as in (a), or function as pronoun, as in (b).

a. PERSON++ ALL ORIGIN SICILY

'All the people come from Sicily.'

b. ALL ORIGIN SICILY

'Everyone comes from Sicily.'

The universal quantifier selects all the entities referred to by the noun. In LIS, there are several signs that can be used with this function. For the sake of simplicity, we only show two of them: ALL(G) and ALL(5). Both are one-handed signs articulated in the neutral space. In ALL(G), the G handshape produces a circular movement on the horizontal plane. A variant form of this sign is almost identical except for the handshape (curved open 5 rather than G).

ALL(G)

Quantifier ALL(G) is not usually spatialised, i.e. the movement component is quite fixed.

In ALL(5), the flat open 5 handshape closes while the hand moves on a linear path.

ALL(5)

The sign ALL(5) can modify the direction of the path movement according to the position and arrangement of the referents associated with the quantified noun (along vertical, horizontal, and deictic axes).

While the handshape of ALL(5) cannot be modified, the quantifier ALL(G) is compatible with numeral incorporation. This means that the G handshape can be replaced by a cardinal handshape (from 2 to 5). To illustrate, cardinal TWO incorporated into ALL(G) is shown in (a). A very similar meaning is obtained with the pronoun IX_{3a+3b} (b), which is produced with the same handshape associated with a repeated linear movement on the horizontal plane.

a. ALL(G)^TWO

'The two of them'

b. IX_{3a+3b}

'Both of them'

Like ALL(G) and ALL(5), EACH applies to all the members of a set, and hence it is compatible with count nouns only. The peculiarity of EACH is its distributive reading: indeed, it selects the members of the set individually, rather than collectively. From an articulatory perspective, this sign is realised reduplicating cardinal ONE with extended thumb in several spatial locations on the horizontal plane (from left to right for a right-handed signer), which are associated to the different members of the set. Each reduplication is usually marked by a slight downward movement.

EACH

Large quantities are usually indicated by quantifiers MANY and NUMEROUS, which are usually compatible with count nouns. Both are two-handed signs, but occasionally they can be articulated with the dominant hand only. MANY involves repeated closing and opening of flat closed 5 handshape displayed on the horizontal plane.

MANY

In NUMEROUS, the fingers open one after the other while the hands move outward on the horizontal plane.

NUMEROUS

The sign SOME selects an unspecified amount of entities and is compatible with count nouns. Two variant forms are quite widespread: SOME(F), a one-handed sign realised with F handshape and repeated forward movements (a), and SOME(G), a two-handed sign realised with G handshape and alternating movement on the vertical plane (b).

a. SOME(F)

b. SOME(G)

Small quantities are indicated by the quantifier FEW. This is a one-handed sign making the tip of the thumb come into contact with the tip of the flexed index finger. It is compatible both with count and mass nouns.

FEW

Some quantifiers do not express absolute quantities, rather relative quantities, namely quantities in relation or in proportion to something

else. We present here three quantifiers of this type: ENOUGH, TOO_MANY (or TOO_MUCH), and MOST. The sign ENOUGH is used when the referents are as many as needed, required, or expected. This is a one-handed sign articulated with unspread 5 repeatedly moving toward the signer's chin.

ENOUGH

The sign TOO_MANY is used when the referents are exceedingly more than needed, required, or expected. This is a two-handed sign: both hands have a curved open L handshape and move outward on the horizontal plane.

TOO_MANY

Both ENOUGH and TOO_MANY are compatible with count and mass nouns. The sign MOST indicates the majority of a set of entities. It is a two-handed sign: both hands have a spread 5 handshape facing one another and the dominant hand moves away from the non-dominant one with an upward linear movement.

MOST

A quantifier with a free choice meaning is ANY. This quantifier is used to express lack of restriction of amount. ANY is a two-handed sign realised with unspread 5 handshape. Both hands undergo repeated nodding (palm/back repeatedly) in mirror fashion.

ANY

In LIS, we also find negative quantifiers, such as ZERO, NOBODY, BARE, and EMPTY. The sign ZERO is derived from the corresponding cardinal numeral [LEXICON 3.10.1.1]. It is articulated with a F handshape moving forward in the signing space. This particular handshape is iconically related to the digit 0. ZERO can be produced with either one or two hands. It is compatible with both count and mass nouns and with both animate and inanimate referents.

ZERO

The sign NOBODY occurs only with animate referents. It is a symmetric two-handed sign realised with G handshape and diverging linear path movement on the horizontal plane. NOBODY shows a particu-

lar distributional pattern, which is addressed in [SYNTAX 1.5.1.2.1] and [SYNTAX 4.4.2].

NOBODY

The signs EMPTY and BARE usually indicate absence of something. EMPTY is produced in the neutral space with flat closed hand and wrist rotation. It can be produced with either one or both hands.

EMPTY

The sign BARE, on the other hand, is articulated with 3/5 handshape and linear movement.

BARE

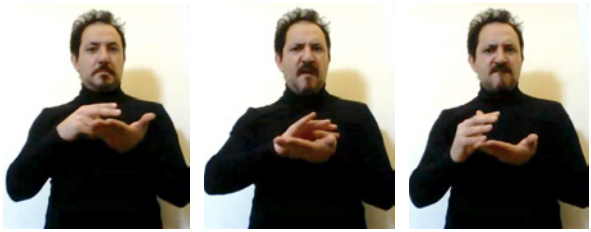
While in the sign EMPTY the movement component looks quite fixed, the sign BARE can modify the direction of the movement according to the location in space in which the referent is absent. For example, to convey that there are no books in a wardrobe, the direction of the sign BARE can specify whether this lack of books applies to a single shelf from left to right, as in (a), or to the whole wardrobe from top to bottom, as in (b).

a. WARDROBE INSIDE BOOK $\text{BARE}_{\text{ipsi}}$
'In the wardrobe (from left to right) there are no books.'

b. WARDROBE INSIDE BOOK $\text{BARE}_{\text{down}}$
'In the wardrobe (from top to bottom) there are no books.'

The quantity expressed by the quantifier can be modified through non-manuals (e.g. wide-open eyes, mouth-corners pulled downward, tensed lips, etc.). For more details, see [MORPHOLOGY 2.2].

Quantification can also be expressed by means of a particular classifier category, namely Size-And-Shape Specifiers (SASS) [MORPHOLOGY 5.2]. This strategy is especially used with mass nouns, such as FLOUR, HONEY, and SALT.



JAM SASS(5): 'big_amount'
'A considerable amount of jam'

For a discussion of the syntactic distribution of quantifiers within the nominal phrase see [SYNTAX 4.4].

3.11. Particles
To be developed.

3.11.1 Negative particles
To be developed.

3.11.2 Question particles
To be developed.

3.11.3 Discourse particles
To be developed.

3.12. Interjections
To be developed.

Information on Data and Consultants

The descriptions in these sections are based on the references below. For information on data and consultants see the references. The video clips and images exemplifying the linguistic data have been produced by LIS native signers involved in the SIGN-HUB Project.
In [LEXICON 3.2], we decided to use Carol Padden's classification (Padden 1988), rather than the alternative classification based on Pizzuto (1986).

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Part IV
Morphology

This Part illustrates the morphological processes of LIS.

The first two chapters deal with two lexical word formation processes, namely compounding [MORPHOLOGY 1] and derivation [MORPHOLOGY 2]. On the other hand, the third and fourth chapters consider inflectional processes employed to encode morphosyntactic features on verbs, i.e. verbal inflection [MORPHOLOGY 3] and nouns, i.e. nominal inflection [MORPHOLOGY 4], through both modifications of the manual signs and/or the articulation of dedicated non-manual markers. The last chapter [MORPHOLOGY 5] describes the complex system of LIS classifiers by considering classifier predicates and Size-And-Shape Specifiers (SASS).

1 Compounding

Summary 1.1 Native compounds. – 1.2 Loan compounds. – 1.3 Compounds with fingerspelled components.

Compounds are the result of a linguistic process that combines two or more morphological units or stems. These stems can combine sequentially. However, since sign languages can use both hands as independent articulators, two stems can also be produced at the same time, and this leads to simultaneous compounds. In this case, the dominant hand produces one stem and the non-dominant hand produces the other one at the same time.

1.1 Native compounds

In this section we focus on native compounds, namely compounds formed by stems coming from the core lexicon [LEXICON 1.1] or from the non-core lexicon, which notably includes classifiers [LEXICON 1.2.1]. We discuss compounds including non-native lexicon (loan compounds) in [MORPHOLOGY 1.2].

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1.1.1 Sequential compounds

In sequential compounds, two or more stems are signed one after another. In some of these, there are phonological reduction and assimilation processes, in others the stems are just fully expressed. As the stem can be part of the core and non-core lexicon (which include classifiers or pointing signs), there are four logical combinations of sequential compounds, as shown in the table below.

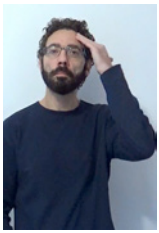
Table 1 Possible patterns in sequential compounds

	Core	**Non-core**
Core	Core^Core	Core^Non-core
Non-core	Non-core^Core	Non-core^Non-core

Example of each of these combinations are shown below. An example of Core^Core is the compound for '(to) fall in love', composed by the core signs HEART and GOAL.

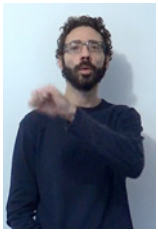
HEART^GOAL
'(To) fall in love'
(based on Santoro 2018, 156)

An example of Core^Non-core is the compound for 'hard disk', which is composed by the core sign MEMORY and by the SASS(flat open 5): 'rectangular_prism' that denotes the size of the object itself [MORPHOLOGY 5.2].



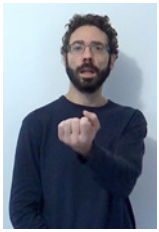
MEMORY^SASS(flat open 5): ‘rectangular_prism’
‘Hard disk’
(recreated from Santoro 2018, 41)

An example of Non-core^Core is the compound for ‘fridge’ which is composed by a handling classifier [MORPHOLOGY 5.1.3], which denotes how to open the fridge, and by the core sign COLD.



CL(closed 5): ‘open_the_fridge’^COLD
‘Fridge’
(recreated from Santoro 2018, 42)

An example of Non-core^Non-core is compound for ‘dishwasher’, which is composed by the handling classifier which denotes how to open the dishwasher itself and the classifier that denotes the movement of the machine.



CL(closed 5): ‘open_the_dishwasher’^CL(G): ‘spin’
‘Dishwasher’ (recreated from Santoro 2018, 43)

1.1.1.1 Semantic structure

From the point of view of their semantic structure, there are compounds whose meaning can be deduced from the meaning of their parts, so they have a compositional meaning. These are called *endocentric*. When the meaning relation between each member and the whole compound is not compositional, the compound is called *exocentric*.

1.1.1.1.1 Endocentric compounds

A LIS example of endocentric compound is HEART^ATTACK. This compound is formed by two stems coming from the core lexicon.

HEART^ATTACK
'Heart attack'
(recreated from Santoro 2018, 50)

The meaning of the whole compound is compositionally obtained combining the meanings of the two members.

Another example is CL(4): 'columns'^CL(4): 'rows' for 'table/chart'. This compound is formed by two stems coming from the non-core lexicon (two classifiers).

CL(4): 'columns'^CL(4): 'rows'
'Table/chart'
(recreated from Santoro 2018, 54)

The meaning of whole compound (table, intended as an arrangement of numbers or symbols in rows on a page) is transparent.

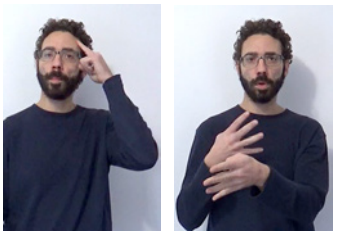
1.1.1.1.2 Exocentric compounds

An example of exocentric compound is ELECTRICITY^CL(5): 'type', meaning 'computer'. This compound is formed by a stem coming from the core lexicon and by a classifier.

ELECTRICITY^CL(5): 'type'
'Computer' (recreated from Santoro 2018, 51)

The compound is exocentric because the semantic relation between the first member (ELECTRICITY) and the second member (the body part classifier) does not directly convey the concept of the whole compound, namely 'computer'.

Another example is IX(forehead)^TRANSPARENT, which means 'psychology'. The first member is a pointing sign toward the forehead and it is related to the head or mind. The second member is a core sign meaning 'transparent'.



IX(forehead)^TRANSPARENT
'Psychology'
(recreated from Santoro 2018, 53)

The meaning of the whole compound is not derived by the composition of these two members, namely the sign does not mean 'the mind is transparent'. Therefore, this compound is exocentric.

Still, another example is YES^NO, which can be paraphrased in English as 'Do something despite uncertainty or risk'. This compound is clearly not compositional, as its meaning is not given by the combination of the concepts conveyed by the signs YES and NO.

YES^NO
'(To) do something despite uncertainty or risk'
(recreated from Santoro 2018, 55)

A final example of sequential exocentric compound is the sign for Ryanair.

PLANE^SASS(flat closed L): 'little'
'Ryanair'
(recreated from Santoro 2018, 65)

The sign Ryanair is composed by the sign PLANE expressed by a whole entity classifier and the sign for 'little' expressed by a SASS classifier. The literal meaning of the sign could be roughly paraphrased as 'cheap airplane'. This would make the compound transparent if it referred to any low cost company. As it is the name of a specific low cost company, the compound is clearly exocentric.

1.1.1.2 Syntactic structure

A second important distinction concerns the syntactic structure of compounds. Irrespective of whether the meaning of a compound is predictable or not (that is, whether it is endocentric or exocentric), the relation between the two members of a compound could be either subordination or coordination.

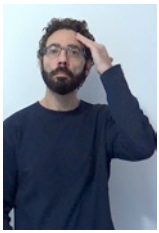
1.1.1.2.1 Subordinate compounds

In a subordinate compound, one member can be identified by the head and the other member of the compound is its complement.

An example of this kind is the sign MEAT^CL(5): 'flat', which is composed by the sign MEAT (the head) and by a whole entity classifier.

MEAT^CL(5): 'flat'
'(Meat) steak'
(recreated from Santoro 2018, 44)

Another kind of syntactic relation inside the compound is the attributive one. In this type of compound, one member is the head while the other one is a modifier, often an adjective. An example of this type of compound is the sign for MEMORY^SASS(flat open 5): 'rectangular_prism', meaning 'hard disk', where the classifier modifies the sign MEMORY, which acts as the head of the classifier.

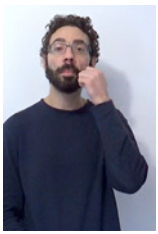


MEMORY^SASS(flat open 5): ‘rectangular_prism’
‘Hard disk’
(recreated from Santoro 2018, 41)

1.1.1.2.2 Coordinate compounds

Coordinate compounds involve members belonging to the same grammatical category which stay in a conjunction symmetrical relation. This can be an *and* or an *or* relation.

An example of coordinate compound is the sign MOTHER^FATHER, meaning ‘parents’.



MOTHER^FATHER
‘Parents’
(recreated from Santoro 2018, 46)

Another example of coordinate compound is YES^NO, already show above and repeated here.

YES^NO
'(To) do something despite uncertainty or risk'
(recreated from Santoro 2018, 55)

This is a coordinate compound, which involves the sign YES and the sign NO.

1.1.1.3 Compounds involving Size-and-Shape Specifiers (SASS)

The examples discussed in the literature suggest that in compounds of this type, the SASS usually follows the lexical sign.

An example of this type in LIS is MEMORY^SASS(flat open 5): 'rectangular_prism', meaning 'hard drive', already shown in the previous paragraph and repeated here.

MEMORY^SASS(flat open 5): 'rectangular_prism'
'Hard disk'
(recreated from Santoro 2018, 41)

In LIS, it is also possible to find compounds in which the SASS is followed by a core sign. An example of this type of compound is the sign for 'driving license'.

SASS(curved open L): 'rectangular'^DRIVE
'Driving license'
(recreated from Santoro 2018, 58)

This is a sequential compound in which the first member is a SASS classifier which shows the shape of the driving license and the second member is the core sign for 'drive'.

1.1.2 Simultaneous and semi-simultaneous compounds

Simultaneous compounding is a modality-specific morphological process. The next section describes it in detail, providing illustrative examples from LIS.

1.1.2.1 Simultaneous compounds

In simultaneous compounds, two or more stems are expressed at the same time. This is possible because each hand can simultaneously produce a different stem. Simultaneous compounds involve several processes, such as phonological reduction [PHONOLOGY 3.1.3] and assimilation [PHONOLOGY 3.1.1], namely one of the two stems is not fully articulated.

Simultaneous compounds expressed by two full stems have not been found in LIS (yet). Simultaneous compounds (as non-simultaneous ones) can be: i) semantically distinguished between endo- and exocentric category and ii) syntactically distinguished between subordinate and coordinate compounds.

First, we focus on the semantic distinction between simultaneous endocentric and exocentric compounds. An example of endocentric simultaneous compound is the sign for 'fax'.

CL(unspread 5): ‘flat’(h1)^ CL(unspread 5): ‘cube’(h2)
‘Fax’
(recreated from Santoro 2018, 63)

This compound is composed by a whole entity classifier expressed by the dominant hand (h1), which represents a paper. The movement associated to this classifier represents the action of sending a fax. The non-dominant hand (h2) is a classifier representing the box containing the fax machine.

Another example of endocentric simultaneous compound is the sign for ‘pencil case’.

CL(closed G): ‘zip_open’(h1)^CL(unspread curved open 5):
‘case’(h2)
‘Pencil case’
(recreated from Santoro 2018, 60)

The head of the compound is represented by the non-dominant hand (the case), while the dominant hand specifies an attribute (the zip). It is endocentric because its meaning is transparent and compositional.

An example of simultaneous exocentric compound is the sign for ‘authorisation’.

CL(closed 5): ‘stamp’(h1)^CL(unspread 5): ‘paper’(h2)
‘Authorisation’
(recreated from Santoro 2018, 64)

The dominant hand is a handling classifier which represents the manipulation of a stamp. The non-dominant hand is a whole entity classifier which represents a paper. The literal meaning of ‘putting a stamp on a paper’ is shifted to the meaning ‘authorise’ or ‘authorisation’, which is not transparent anymore.

Second, we focus on the syntactic distinction between simultaneous subordinate and coordinate compounds. An example of simultaneous subordinate compounds is the sign for ‘fork’. It is composed by two whole entity classifiers articulated at the same time.

CL(V): ‘fork’(h1)^CL(5): ‘dish’(h2)
‘Fork’
(recreated from Santoro 2018, 63)

The whole entity on the non-dominant hand refers to thin, hard object (it could be a dish). The whole entity on the dominant hand refers to the fork itself. It is a subordinate compound since the dominant hand acts as the head of the whole compound and the non-dominant hand represents the complement the fork is used on.

Another example of simultaneous subordinate compound is the sign for ‘pencil sharpener’.

CL(G): ‘pencil’(h1)^CL(flat open 3): ‘sharpener’(h2)
‘Pencil sharpener’
(based on Santoro 2018, 177)

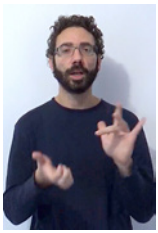
It is composed by two classifiers. The first one is a whole entity classifier that refers to a thin long object (pencil in this case). The second, on the non-dominant hand, is a whole entity classifier that refers to small and rectangular objects (the pencil sharpener itself). The head of the compound is the non-dominant hand, that represents the referent of the whole compound. The dominant hand represents the complement of the head, which is the object the pencil sharpener is used with.

An example of simultaneous coordinate compound is the sign for ‘salami’, composed by two classifiers.

CL(unspread 5): ‘slice’(h1)^CL(unspread curved open 5): ‘salami_hold’(h2)
‘Salami’
(recreated from Santoro 2018, 61)

The dominant hand represents the concept of slice using a whole entity classifier, the non-dominant hand represents the concept of handling something using a handling classifier. The combination of the two members expresses the concept of ‘salami’.

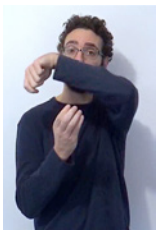
As previously mentioned, the members of a compound can be in an attributive relation. An example of an attributive simultaneous compound in LIS is the sign for ‘iPhone’:



CL(3/5): ‘touch’(h1)^CL(unspread curved open 5): ‘iPhone_hold’(h2)
‘iPhone’
(based on Santoro 2018, 178)

The compound ‘iPhone’ is composed of the handling classifier on the non-dominant hand, which represents how the iPhone is handled. The other member, expressed by the dominant hand, is a body part classifier which represents how we touch it. The head of the compound is the handling classifier on the non-dominant hand, because it refers to the object ‘iPhone’, while the body part classifier on the dominant hand is a modifier, since it explains how to use the object on the other hand.

Another example of attributive simultaneous compound is the sign for ‘pencil case’.



CL(closed G): ‘zip_open’(h1)^CL(unspread curved open 5): ‘case’(h2)
‘Pencil case’
(recreated from Santoro 2018, 60)

Both members are handling classifiers. The head of compound is on the dominant hand which refers to the zip. The non-dominant hand shows how the object (the pencil case itself) is hold. An evidence that confirms that the head is on the dominant hand is that one can modify the form of pencil case, but the meaning of whole compound does not change, as it always refers to a pencil case.

1.1.2.2 Semi-simultaneous compounds

To be developed.

1.2 Loan compounds

The everyday contact between LIS and Italian results in phenomena such as borrowings of lexical elements of LIS from the lexicon of the dominant language [LEXICON 2]. The use of fingerspelling [LEXICON 2.2.2] is a way in which borrowing takes place and this affects compounding. Loan compounds can be of two types: faithful loans and modified loans. They are discussed in the next sections.

1.2.1 Faithful loans

Faithful loan are compounds in which the structure of the compound in the spoken language and the structure of the compound in the sign language is identical.

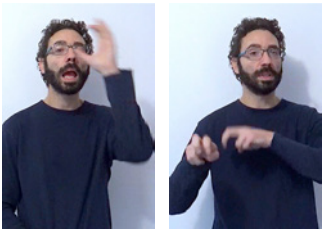
An example of faithful loan is the sign FISH^SWORD, 'swordfish' (Ita. *pescespada*).

FISH^SWORD
'Swordfish' (based on Santoro 2018, 68)

The first member is the core sign FISH, and the second member is the core sign SWORD, which is articulated on the nose on the signer. Here there is a one-to-one relation with the Italian compound, which is composed by *pesce*, 'fish', and *spada*, 'sword', just like in LIS.

1.2.2 Modified loans

In modified loans, the syntactic order between the stems in the sign and in the spoken compound is reversed. An example of modified loan compound is the sign for the Italian word *agriturismo*, 'B&B farmhouse'.



TOURISM^CULTIVATE
'B&B farmhouse'
(recreated from Santoro 2018, 69)

In this LIS compound, the first stem is the core sign TOURISM and the second one is the core sign CULTIVATE. Notice that in Italian the order of the corresponding words is reversed, as the compound *agriturismo* can be literally translated as 'cultivate-tourism'.

1.3 Compounds with fingerspelled components

This section describes compounds in which one of the stems is expressed by a fingerspelled entry. Two types of compounds with fingerspelled components can be found: native-like and loan-like compounds. Both can be expressed in sequential or simultaneous fashion.

1.3.1 Sequential

This section deals with sequential compounds containing fingerspelled components.

1.3.1.1 Native-like

Native-like compounds contain a letter that typically stays for the initial of the corresponding Italian word, but do not correspond to an Italian compound.

In LIS, an example of sequential compound of this type is the one expressing the concept of 'culture', which is formed by the fingerspelled C, which corresponds to the first letter of the Italian word *cultura*, and by the sign for the possessive [LEXICON 3.7.3].

C^POSS(5)$_3$
'Culture'
(recreated from Santoro 2018, 74)

1.3.1.2 Loan-like

Loan-like compounds include fingerspelled components from the spoken language too. However, here the structure of the compound is the same in the spoken and in the sign language.

At present time, loan-like compounds have not been identified in LIS.

1.3.2 Simultaneous

An example of a simultaneous native-like compound is the sign for 'law'.

L(h1)^CL(unspread 5): 'flat'(h2)
'Law' (recreated from Santoro 2018, 76)

This simultaneous compound is composed by the fingerspelled letter L, which refers to the first letter of the Italian word *legge*, and by a whole entity classifier, which in this case refers to the concept of a concrete flat object on which the law is written.

1.4 Phonological and prosodic characteristics of compounds

To be developed.

1.4.1 Phonological characteristics

To be developed.

1.4.2 Prosodic characteristics

To be developed.

Information on Data and Consultants

The descriptions in these sections are based on the references below. For information on data and consultants see the references. The images exemplifying the linguistic data have been produced by a LIS native signer.

Authorship Information

Mirko Santoro

References

Aristodemo, V.; Geraci, C. (2018). "Visible Degrees in Italian Sign Language". *Natural Language and Linguistic Theory*, 36(3), 685-99.

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2 Derivation

Summary 2.1 Manual markers of derivation. – 2.2 Non-manual markers of derivation.

The present chapter illustrates the morphological processes that LIS employs to derive new lexemes from existing ones. As a word formation process, derivation differs from compounding [MORPHOLOGY 1] in that it consists of the combination of affixes (i.e. bound morphemes) with a stem, namely a free word or sign functioning as base. The peculiarity of derivational morphology in LIS, and in sign languages in general, is that affixes can be realised both manually [MORPHOLOGY 2.1.] and non-manually [MORPHOLOGY 2.2], and their addition to the stem can be either sequential or simultaneous: i) sequential derivation consists of the concatenation of a base sign and an affix, whereas ii) simultaneous derivation is marked through the modification of one or more phonological parameters [PHONOLOGY 1] of the manual sign (stem modification), or through the addition of specific non-manual markers, simultaneously articulated with the manual sign. Nonetheless, derivational processes can also imply no modification at all, thus realising zero derivation or conversion.

As in other sign languages, simultaneous processes are the most common in LIS, though we find sequential operations as well. In the remainder of this chapter, we will describe and provide examples for each strategy.

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2.1 Manual markers of derivation

Derivation can be marked both manually and non-manually, depending on the type of morpheme that is added to the base sign. The present section concerns derivational processes involving manual markers, which can be either i) sequential, when consisting of the addition of a manual segment to the base sign (i.e. the stem), or ii) simultaneous, when involving the modification of the formational parameters of the manual base sign (stem modification).

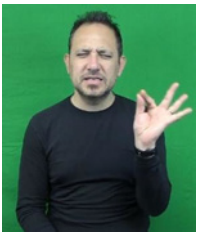
2.1.1 Sequential derivation

Processes of sequential derivation result in morphologically complex signs composed of a stem, a free lexical element, and an affix, which is a bound morpheme that cannot occur alone. The affix carries a specific meaning and its presence leads to a phonological reduction of the base sign. In so doing, the resulting construction behaves like a single lexical unit.

This process is clearly displayed in the difference between the sign BEAUTIFUL (a) and its intensive counterpart (b). In (b), we see that the presence of the intensive morpheme, glossed 'INT' reduces the articulation of the sign BEAUTIFUL. The intensive morpheme is illustrated in (c) for clarity.

a. BEAUTIFUL

b. BEAUTIFUL-INT
'Really beautiful'



c. Intensive morpheme

Manual sequential processes can be marked by dedicated non-manual markers.

It is important to notice that sequential processes are rare in LIS,

as in other sign languages. However, we do find some examples of manual sequential derivation, which are described below.

2.1.1.1 Agentive

Across languages, agentive markers are employed to derive agentive nouns from verbs or other non-agentive nouns. In LIS, agentive nouns are often distinguished from the corresponding verb by means of simultaneous derivation involving the modification of phonological features (explored in [MORPHOLOGY 2.1.2.1]). As for agentive nouns derived from other non-agentive nouns, instead, LIS can employ the sign PERSON, functioning as agentive marker. Consider the pair below.

a. CAR

'autista'
b. CAR^PERSON
'Driver'

In the examples above, we notice some important features: i) the sign PERSON in (b) follows the sign CAR, which is phonologically reduced in movement; ii) the mouthing [PHONOLOGY 1.5.2] of the Italian word *autista* ('driver') spreads on both the signs CAR and PERSON; iii) the signs CAR and PERSON form a lexical unit. In so doing the sign PERSON could either be considered a derivational morpheme deriving an agentive noun from a non-agentive noun, or it could be considered the second member of the compound CAR^PERSON since it is a sign that can also occur alone [MORPHOLOGY 1]. Accounting for the morphological nature of PERSON is not straightforward because its articulation is not systematic and not obligatory among signers. As shown in the example below, the sign PERSON is not produced after the sign CAR, it is only the mouthing *autista* ('driver') that allows to identify the agentive noun.

'autista'
CAR IX_3 DRIVE PHONE SPEAK
'The driver talks on the phone while driving.'

Mouthings are also crucial in cases of homophonicity between the sign for the agentive noun and the verb (further details are discussed in [MORPHOLOGY 2.2.4]. In the example below, the two signs are distinguished by the mouthings of the corresponding Italian words, *balle-*

rina ('dancer') and *balla* ('dances') and are articulated in two different points of the signing space.

'ballerina' 'balla'
DANCER DANCE
'The dancer is dancing.'

Therefore, it seems that LIS can rely on several means to mark agentivity and does not necessarily need a dedicated element. What is crucial is that PERSON is necessary to convey plurality by being reduplicated, as in the example below.

'autisti'
CAR^PERSON++ ALL DRIVE PHONE SPEAK
'All the drivers talk on the phone while driving.'

The mouthing *autisti* ('drivers') evokes the plural form of the corresponding Italian word and spreads on both CAR and PERSON++. In these instances, PERSON loses its lexical meaning and functions as a morphosyntactic marker of plurality. These instances suggest that in the future, the sign PERSON could grammaticalise into the agentive affix, but these processes are known to take time to happen.

2.1.1.2 Negative

Negative particles can be employed in LIS to realise negative derivation. This morphological process is a word-formation process that derives the negative counterpart of existing nouns or adjectives. Therefore, in this section we do not address negation of predicates or sentences since they are inflectional phenomena explored in [MORPHOLOGY 3.5] and [SYNTAX 1.5].

The most common strategy for negative derivation consists in the articulation of the negative sign NOT after the noun or adjective. Compare (a) with the negative counterpart in (b) below.

a. ALCOHOLIC

b. ALCOHOLIC^NOT
'Non-alcoholic'

The negative marker NEG_S can be employed to convey the meaning 'without'. In the example below, NEG_S follows the sign SUGAR in order to describe which type of candy a person with diabetes can eat.

CANDY$_a$ IX(dem)$_a$ SUGAR^NEG_S EAT BE_ABLE
'(S/he) can eat the sugar-free candy.'

Both the constructions ALCOHOLIC^NOT and SUGAR^NEG_S form lexical units. The addition of the negative particle can be considered a derivational process in that it is employed to derive a new lexical item. However, the morphological status of the negative particle as suffix or member of a compound is not clear due to the great variability in use and productivity among signers.

2.1.1.3 Attenuative

In LIS, we do not find instances of sequential derivation to convey attenuation. However, LIS can employ a dedicated manual sign (glossed 'ATTENUATIVE') to mark attenuation of colours, conveying that they are vague or less strong with reference to the standard. A few examples are shown below.

fe
sq
tp
a. LIGHT_BLUE ATTENUATIVE
'Bluish'

fe
sq
tp
b. GREEN ATTENUATIVE
'Greenish'

As the examples show, the sign conveying the attenuative is marked by specific non-manual markers consisting in furrowed eyebrows (fe), squinted eyes (sq) and tongue protrusion (tp), which convey the concept of vagueness related to the colour. This sign is specifically employed to convey attenuation of colours and thus cannot occur alone. However, it does not show the other properties usually displayed by derivational suffixes (i.e. productivity, phonological reduction), so it is better to consider it an independent lexical sign. It is possible, though, that in future it will grammaticalise in the attenuative morpheme, but this process takes time and LIS, as other sign languages, is still too young to display morphological processes of this kind.

A different strategy attested concerns the possibility to employ the adverb MORE_OR_LESS or adjectives like LIGHT which convey attenuation following the colour adjective. We provide an example for each strategy below for sake of completeness.

a. YELLOW MORE_OR_LESS
'Yellowish'

b. RED LIGHT
'Reddish'

2.1.2 Simultaneous derivation

Simultaneous derivational processes consist in the modification of one or more formational parameters of the stem (i.e. the manual sign) to derive a new lexeme with a specific meaning. For instance, in LIS some agentive nouns differ from the corresponding verb only in few phonological features, such as the articulation or the occurrence of specific non-manual markers or mouthings. To illustrate, consider the pair below. The verb TEACH and the agentive noun TEACHER, despite being very similar, differ in the point of contact between the two articulators: the wrist for the verb (a), and the forearm/elbow for the noun (b).

a. TEACH

b. TEACHER

Further strategies of simultaneous derivation are illustrated in the next sections.

2.1.2.1 Noun-verb pairs

In LIS, it is not always easy to distinguish a noun sign from a verb sign, at least at first sight. Factors that allow us to distinguish if the sign is a noun or a verb are the linguistic context, mouth actions and movement articulation.

Often, the position occupied by the sign within the sentence is a way to understand its syntactic role, whether the sign is a noun or a verb. Below we show an example in which both the noun SCISSORS and the verb CUT_WITH_SCISSORS appear in the same sentence:

IX$_1$ DRAW PERSON++. DRAW DONE THEN SCISSORS
CUT_WITH_SCISSORS

'I drew some people. After that I cut them with scissors.'

As expected, the instrumental noun SCISSORS precedes the sentence-final verb CUT_WITH_SCISSORS.

Another factor that can help to distinguish between a noun and a verb sign is the labial articulation of the corresponding Italian word or of part of it (mouthing), which generally appears on nouns or adjectives, rather than on verbs [PHONOLOGY 1.5.2]. Verbs, on the other hand, are often accompanied by mouth gestures [PHONOLOGY 1.5.1] or no labial movement at all. In the examples below, the verb DRIVE (a) and the noun CAR (b) differ in that the verb is marked by specific non-manuals (puffed cheeks 'pc' and lips protrusion 'lp'), which are usually found with verbs, whereas the noun has no specific non-manual marking nor labial movement. The role of mouthing in noun-verb pairs in LIS is discussed in [MORPHOLOGY 2.2.4].

pc
lp
a. DRIVE

b. CAR

Furthermore, noun and verb signs in LIS can be distinguished by considering the different movement performed by the manual sign. It may concern: i) movement articulation, ii) movement amplitude, iii) movement directionality, and iv) duration.

As for movement articulation, in nouns the movement is usually short, tense, repeated and contained, while in verbs it is never contained and can be single, repeated, or continued. Sometimes the difference is in the virtual absence of movement in the noun and, conversely, movement or more complex movement in the verb sign. For example, this phenomenon has been observed in the articulation of the verb PLAY with respect to the articulation of the noun TOY, as shown in the example below.

SON POSS$_1$ IX TOY NEW IX$_3$ PLAY
'My son plays with his new toy.'

As for movement amplitude, the verb movement is wider than the noun movement. For example, this phenomenon has been observed in the pair CHAIR (a) and SIT (b), where the verb is articulated in a broader way.

a. CHAIR

b. SIT

In the 'open and shut' signs, the movement is bidirectional when the sign is a noun, while the movement is single and has a monodirectional movement when the sign is a verb. An example is the pair of signs BOOK (a) and OPEN_THE_BOOK (b).

a. BOOK

b. OPEN_THE_BOOK

The execution of the verb tends to be longer than that of the noun. In some cases, the length of the verb may be twice the length of the noun. An example is the pair ROCKET (a) and CL(G): 'rocket_take_off' (b).

'missile'
a. ROCKET

lp
pc
b. CL(G): 'rocket_take_off'
'The rocket is taking off.'

The examples above are further evidence that usually stem modification is combined with the simultaneous articulation of mouthings or dedicated non-manual markers. The noun ROCKET (a) is accompanied by the labial articulation of the corresponding Italian word *missile*. On the other hand, the corresponding classifier predicate CL(G): 'rocket_take_off' (b) occurs with the mouth gestures puffed cheeks (pc) and lips protrusion (lp).

2.1.2.2 Attenuative

As introduced in [MORPHOLOGY 2.1.1.3], attenuative markers are used to denote that a concept is vague or less strong. The present section describes simultaneous derivational processes in which modifications of manual parameters of the stem and articulation of dedicated non-manual markers occur together to convey attenuation.

In LIS, attenuative of adjectives can be conveyed through dedicated non-manual markers consisting of furrowed eyebrows (fe),

lips protrusion (lp) and head tilting left- or rightwards (ht-left/right). The manual sign for the adjective with which they occur is slightly hold at the beginning of its articulation and can display a narrower movement. The examples below show the difference between the citation form of the adjective COLD (a) and its attenuative version (b).

a. COLD

fe
lp
ht-left
b. COLD
'Not very cold'

The examples below show the difference between the citation form of the adjective INTELLIGENT (a) and its attenuative version (b).

a. INTELLIGENT

fe
lp
ht-left
b. INTELLIGENT
'Not very smart'

The same non-manuals can also be employed to convey the vagueness of colour adjectives. To illustrate, we provide below the citation form of YELLOW (a), produced by a signer whose dominant hand is the left one, and its vague version (b), produced by a signer whose dominant hand is the right one.

a. YELLOW

lp
ht-left/right
b. YELLOW
'Yellowish'

2.2 Non-manual markers of derivation

Derivational processes can also involve non-manual markers alone. Specifically, in these constructions dedicated non-manual markers are articulated to modify the meaning of the base manual sign, thus functioning as non-manual morphemes. To illustrate, in the example below the negative counterpart of the adjective SATISFIED is derived by adding the non-manual headshake (hs).

top hs
JOB PE IX$_1$ SATISFIED
'I am not satisfied about my job.'

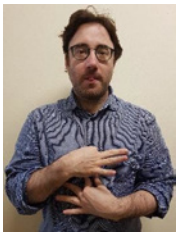
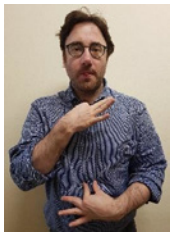
Very often the articulation of non-manuals combines with modifications of the manual parameters of the stem. This is particularly evident in morphological constructions conveying diminution or augmentation and intensification. The following sections are devoted to the description of the simultaneous derivational processes involving specific non-manual markers in LIS.

2.2.1 Diminutive and augmentative

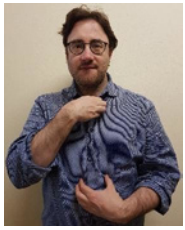
Diminution and augmentation of the size of an object can be conveyed in LIS through dedicated non-manual markers which are simultaneously articulated with the noun they modify. In some instances, the manual nominal sign displays a reduced or enlarged articulation to encode diminution or augmentation, respectively. This simultaneous derivational process does not change the lexical category of the base (i.e. the manual sign). We provide some examples below.

sq
tp
a. BOX
'Little box' (diminutive)

fe
tl
b. BOX
'Big box' (augmentative)

sq
tp
c. TIE
'Little tie' (diminutive)
(recreated from Petitta et al. 2015, 160)



fe
tl
d. TIE
'Big tie' (augmentative)
(recreated from Petitta et al. 2015, 160)

tp tl tp tl tp
e. dom: STRIPE STRIPE STRIPE STRIPE STRIPE
n-dom: STRIPE
'Alternating thin and thick stripes' (diminutive/augmentative)

Focusing on non-manual markers, the examples above show that diminution is encoded through squinted eyes (sq) and tongue protrusion (tp), whereas augmentation is conveyed through furrowed eyebrows (fe) and teeth on the lower lip (tl). Crucially, these non-manual markers are not lexically specified for the adjectives SMALL and BIG, respectively, therefore they constitute clear examples of non-manual morphemes encoding diminution and augmentation. As far as the manual sign is concerned, it can display modifications involving distalisation (a) or proximalisation (b) [PHONOLOGY 3.1.3.2], a change of the handshape

(c) and (d), or a change in the degree of flexion in the base joint (e).

It is important to notice that both the simultaneous articulation of the non-manual morphemes and the modifications of the manual sign are constrained to some extent. The occurrence of non-manual morphemes involving the mouth is constrained by mouthings [PHONOLOGY 1.5.2]: when the nominal sign is accompanied by the voiceless articulation of the corresponding Italian word, the mouth cannot articulate the non-manual marker dedicated to diminutive or augmentative. Thus, diminution or augmentation are conveyed solely by means of manual modifications. This strategy is illustrated below: the sign STREET is accompanied by the mouthing of the corresponding Italian word (*strada*) and thus it conveys augmentation by enlarging the distance between hands.

'strada'
STREET
'Large street' (augmentative)

The morphological modification of the manual sign is phonologically constrained as well. Nouns whose phonological structure does not allow to encode features of size through modifications of the articulation or of the joints configuration need another element to encode size information, namely a size and shape specifier (SASS) [MORPHOLOGY 5.2]. This strategy is adopted with:

i) one-or two-handed nouns articulated on the body which cannot modify the handshape to encode size;

sq
tp
a. BED SASS(unspread 5): 'little'
'Little bed' (diminutive)

sq
tp
b. BACKPACK SASS(flat open 4): 'little'
'Little backpack' (diminutive)

ii) two-handed nouns articulated in the neutral space displaying secondary movement [PHONOLOGY 1.3.2]. Particularly, nominal signs displaying repeated alternating movement (a) or involving a change in wrist orientation (b) do not allow to encode size through manual modifications;

sq
tp
a. CAR SASS(unspread curved open 5): 'little'
'Little car' (diminutive)

fe
tl
b. SHOE SASS(flat open 4): 'big'
'Big shoe' (augmentative)

iii) two-handed nouns articulated in the neutral space but displaying a contact between hands.

sq
tp
a. BOOK SASS(G): 'little_square'
'Little book' (diminutive)

fe
tl
b. HOUSE SASS(spread 5): 'big'
'Big house' (augmentative)

Simultaneous processes of diminution and augmentation are also semantically constrained. First, nouns referring to animate entities, such as DOG, need a SASS to encode size.

sq
tp
DOG SASS(unspread curved open 5): 'little'
'Little dog' (diminutive)

Second, abstract nouns cannot convey diminution and augmentation through morphological means. However, the sign PARTY constitutes an exception. As we can see in example (a) below, the manual sign can display a proximalised movement (at the elbow joint) and be marked by furrowed eyebrows (fe) and open mouth (om) to convey the meaning 'big party'. The manual sign can also display movement distalisation (at the wrist joint) but in this case the distalisation of movement encodes pejorative rather than diminutive features, thus conveying the meaning 'boring/awful party'. This is further specified through the non-manuals furrowed eyebrows and mouth corners down (md). We report this example in (b) for completeness.

fe
om
a. PARTY

'Big party' (augmentative)

fe
md
b. PARTY

'Boring/awful party' (pejorative)

2.2.2 Intensive

LIS can convey a high degree on the semantic scale of adjectives through the combination of modifications of the adjectival sign with the articulation of dedicated non-manual markers. Specifically, the movement and articulation of the manual sign differ from the sign in its citation form in that: i) the movement can be slower and slightly hold at the beginning of the articulation; ii) the articulation can be enlarged or reduced. The dedicated non-manual markers are furrowed eyebrows (fe) and, though less often, wide-open eyes (we) or squinted eyes (sq). Usually these non-manual markers combine with the mouthing of the first syllable of the Italian word for the adjective: [fe] for *felice* (Eng. 'happy') in (d), and [ve] for *vecchio* (Eng. 'old') in (e), which spreads over the whole sign. However, some variability is found. We illustrate these strategies with the examples below.

fe
we
a. TALL

'Very tall'

fe
b. COLD

'Very cold'

fe
sq
c. FAR

'Very far'

fe
[fe]
d. HAPPY
'Very happy'

fe
[ve]
e. OLD
'Very old'

Intensification of colour adjectives is slightly different in that it is conveyed through the non-manual marker wide-open eyes simultaneously articulated with the manual sign.

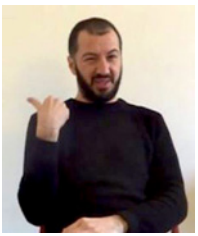
we
a. GREEN
'Bright green'

we
b. RED
'Bright red'

2.2.3 Proximity

Proximity, either temporal or spatial, can be marked in LIS by means of non-manuals alone.

Temporal proximity is conveyed through squinted eyes (sq) and slightly grinding teeth (gt) modifying the sign RECENTLY, conveying that something happened just few seconds before. This is illustrated below.



sq
gt
RECENTLY

On the other hand, spatial proximity is conveyed through tongue protrusion (tp), often at the corner of the mouth, which can occur with indexical signs conveying the position of the entity. In the example below, we see that the non-manual marker for proximity occurs with the indexical sign articulated with the dominant hand, to indicate that there is another door very close to the other identified with the classifier articulated with the non-dominant hand.

tp
dom: DOOR ANOTHER IX(loc)$_a$
n-dom: CL(unspread 5): 'door_be_located'$_b$---
'That door is next to the other (door).'

2.2.4 Noun-verb pairs: mouthing

The most important difference observed between a noun and the corresponding verb is in non-manual markers. The noun in the noun-verb pair is typically articulated with the labial articulation of the corresponding word or part of it. The corresponding verb, on the other hand, is typically accompanied by specific mouth gestures, such as protrusion of the lips (lp) and slightly puffed cheeks (pc) [MORPHOLOGY 2.1.2.1].

These mouth gestures are present in the articulation of verbs that form a pair with the corresponding noun when the signer does not need to specify, with an incorporated adverb, that the action denoted by the verb is articulated in a special way. To illustrate, the mouth gesture described above accompany the verb FLY.

lp
pc
FLY

Conversely, in the following example, we can see the articulation of the noun PLANE: the manual sign is accompanied by the mouthing corresponding to the Italian word *aereo* ('plane').

'aereo'
PLANE

Another example is the verb CUT_WITH_KNIFE, where the sign is accompanied by lips protrusion and puffed cheeks.

lp
pc
CUT_WITH_KNIFE

In the next figure the sign KNIFE is produced with the mouthing corresponding to the Italian word *coltello* ('knife').

'coltello'
KNIFE

The phenomenon has been consistently observed with concrete verbs. However, it is also present with abstract verbs, possibly less systematically. We can observe the occurrence of the phenomenon with the abstract verb IMAGINE in the following example.

lp
pc
IMAGINE

Conversely, in the example below we can observe that the noun IMAGE is accompanied by the mouthing corresponding to the Italian word *immagine* ('image').

'immagine'
IMAGE

Information on Data and Consultants

The descriptions in this chapter are based partially on the references below and on the elicitation of new data collected by the authors. The linguistic data illustrated as images and video clips have been checked through acceptability judgments and have been reproduced by Deaf native-signing consultants involved in the SIGN-HUB Project.

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3 Verbal inflection

Summary 3.1 Agreement. – 3.2 Tense. – 3.3 Aspect. – 3.4 Modality. – 3.5 Negation.

In [LEXICON 3.2], a preliminary description of the three categories of verbs (plain verbs, agreement verbs and spatial verbs) detected in LIS has been provided, focussing on their articulation and possibility to show overt morphological agreement with their arguments.

The present chapter improves the description of the three verb classes by considering the inflectional morphological processes involved to convey not only agreement (of person, location and number) [MORPHOLOGY 3.1], but also tense [MORPHOLOGY 3.2] and aspect [MORPHOLOGY 3.3]. Notice that these morphosyntactic features are mainly encoded through i) spatial relations among loci, which are specific points of the signing space associated to the argument(s) of the verb, ii) reduplication of the verb sign and/or iii) modification of the point(s) of articulation, path-movement (if any) and/or orientation of the verb sign.

3.1 Agreement

In LIS, we can distinguish three types of agreement: person, number and spatial agreement. Person and number agreement refer to the phonological modifications that verbs display to encode person

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and number features, whereas spatial agreement defines the locative source and/or locative goal of an event. As shown in [LEXICON 3.2], only agreement and spatial verbs can convey agreement through modification of some of the phonological features of the verb root: point of articulation, direction of the path-movement, orientation of the palm. The following sections describe how each verb class marks agreement of person, number and location with its arguments. We will see that also dedicated non-manual markers play a crucial role in verbal inflection, in that they can occur with the verb sign to disambiguate arguments in space.

3.1.1 Person and locative markers

The present section describes how person agreement is phonologically marked on the three verb classes described in [LEXICON 3.2]. Person agreement differs from locative agreement, explored in [MORPHOLOGY 3.1.1.3], in that it defines morphosyntactic relations between the predicate and its arguments. Locative agreement, instead, defines locative relations in spatial verbs.

To convey both person and locative agreement, it is common to associate arguments to specific loci of the signing space. Arguments and locations can also be marked through classifiers [MORPHOLOGY 5.1], or role shift [SYNTAX 3.3.3].

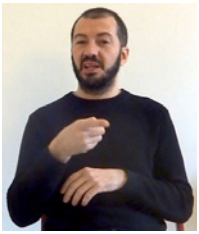
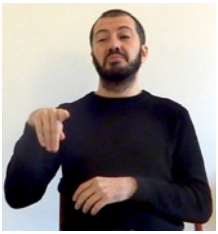
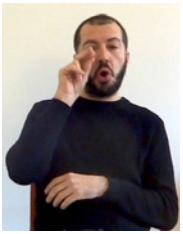
3.1.1.1 Subject markers

As in other sign languages, persons in LIS correspond to specific points of the signing space called *loci*. Specifically, i) first person coincides with a point of articulation which is close to or on the signer's body, ii) second person is marked by a locus in the direction of the interlocutor, whereas iii) third person corresponds to a point of the signing space which is distant from both the signer and the interlocutor. This point expresses the absolute position of the referent (if present in the extra-linguistic context) or the locus associated to the referent in previous discourse. Usually, non-present third person subjects are associated to a locus at the ipsilateral side of the signing space, but this is not obligatory.

Person markers can consist in manual signs such as pronouns, i.e. pointing signs towards dedicated loci [LEXICON 3.7.2.1], or they can be conveyed through modifications of some phonological features of the verb sign, which can be articulated in the locus associated to the ar-

gument and/or modify its path movement to show overt manual morphological agreement. The morphological strategies adopted by LIS verbs are illustrated below. For further information about argument realisation see [SYNTAX 2.2].

Plain verbs [LEXICON 3.2.1], both transitive and intransitive, are articulated near or on the signer's body in their citation form, thus they cannot be inflected in space to show overt agreement with their argument(s). Nevertheless, the subject position can optionally be marked non-manually by means of head tilt (ht) or a slight body lean (bl-left/right) occurring with the articulation of the verb sign, thus realising non-manual agreement [SYNTAX 2.1.2.3.2]. In the example below, we see that the signer non-manually marks the position dedicated to the subject GIANNI through a slight body lean towards the position of the signing space in which the subject GIANNI was previously articulated.

bl-left: a

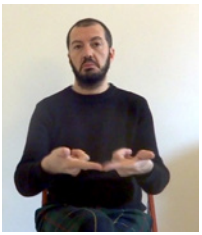
GIANNI$_a$ PIETRO BE_FAMILIAR

'Gianni knows Pietro.'

Alternatively, plain verbs can be followed by an auxiliary AUX which allows to show overt manual agreement between the subject and the object (see [LEXICON 3.3.4] for details).

Differently from plain verbs, agreement verbs [LEXICON 3.2.2] can display overt manual morphological agreement with the arguments.

In transitive and ditransitive agreement verbs displaying two points of articulation in the neutral space connected by path movement, the subject argument is usually associated to the starting point of the movement, which can be on the signer's body to mark first person (a) or dislocated in the signing space for second and third person (b).



a. $_{1}$DONATE$_{2}$
'I donate you this.'

b. GIANNI$_{a}$ MARIA$_{b}$ $_{a}$HELP$_{b}$
'Gianni helps Maria.'

The position of third person subjects is optionally non-manually marked by head tilt and a slight body lean towards the starting point of the movement, corresponding to the subject position. Notice that eye gaze (eg), instead, is directed towards the location of the object argument [SYNTAX 2.1.2.3.2]. Non-manual markers are produced simultaneously to the articulation of the verbal sign.

ht: a
bl-left: a
eg: b

L-U-C-A$_{a}$ P-A-O-L-O$_{b}$ $_{a}$HATE$_{b}$
'Luca hates Paolo.'

Transitive and ditransitive agreement verbs whose starting point is on the signer's body, like SEE and SAY, show overt manual morphological agreement with the subject when they select for a first person subject, since its locus corresponds to the starting point of the path movement of the verb. This is illustrated below.

IX$_{1}$ ADDRESS POSS$_{1}$ $_{1}$SAY$_{2}$
'I told you my address.'

When they select for a second or third person subject, no manual morphological agreement is displayed by the verb due to articulatory reasons. The subject is localised in the signing space through a noun phrase or pronoun (see [SYNTAX 2.1.2] for details), and the verb sign can optionally be marked by head tilt and a slight body lean towards the position in the signing space associated with the subject,

as to realise non-manual subject agreement. This is illustrated below.

ht: a
bl-left: a
L-U-C-A_a P-A-O-L-O_b LIE SAY$_b$
'Luca tells a lie to Paolo.'

It is important to notice that the final location of the path movement of these verbs realises morphological manual agreement with the object argument (direct or indirect) [MORPHOLOGY 3.1.1.2].

Crucially, in transitive *backward verbs* [LEXICON 3.2.2] subject marking corresponds to the final location of the verb movement. For first and second person subject, as in (a) below, the verbal sign retains its citation form. On the other hand, when the verb selects for a third person subject, the verb movement can be slightly modified as to spatially agree with the subject, as shown in (b).

a. IX$_2$ T-SHIRT TAKE
'You take the t-shirt.'

b. L-U-C-A KEY TAKE
'Luca takes the keys.'

Intransitive agreement verbs displaying one point of articulation in the signing space optionally agree with the subject when it has the thematic role of agent (in unergative verbs, like PLAY (a)), while they must show spatial agreement with the subject when it has the thematic role of theme (in unaccusative verbs, like GROW_UP (b)) [SYNTAX 2.1.1.2; 2.1.2.3.1].

a. CHILD$_a$ PLAY$_a$
'The child plays.'

b. CHILD$_a$ GROW_UP$_a$
'The child grows.'

Unaccusative agreement verbs are usually articulated in their citation form, namely in front of the signer, for first person; for second or third person, they display overt morphological agreement with their only argument being articulated in the same locus of the signing space, as in (b) above. If the subject is an invariable nominal sign (i.e. it is articulated on the signer's body), it is assigned a locus in the signing space through a pointing sign, and the verb shows spatial agreement with it, as illustrated below.

WOMAN^CHILD IX_a $GROW\_UP_a$
'The girl grows.'

3.1.1.2 Object markers

Overt manual morphological agreement with the object is displayed only by agreement verbs [LEXICON 3.2.2]. The phonological realisation of agreement depends on the verb type.

In transitive agreement verbs displaying two points of articulation in the neutral space connected by path movement, the object is marked by the ending point of the path movement. If the verb selects for a first person object, the path movement ends on the signer's body (or in a position close to it). Optionally, the verb sign can be marked by eye-gaze (eg) directed towards the locus associated with the object, thus realising non-manual object agreement.

ht: a
bl-left: a
eg: b
L-U-C-A_a P-A-O-L-O_b $_aHATE_b$
'Luca hates Paolo.'

In transitive agreement verbs whose starting point is on the body of the signer, second and third person object is marked by the final position in the neutral space of the verbal path movement. Optionally, agreement can also be marked non-manually, by means of eye-gaze and shoulders of the signer directed towards the object position. Some of these verbs are SEE, KISS, LOVE.

a. G-I-A-N-N-I M-A-R-I-A_a SEE_a
'Gianni sees Maria.'

b. G-I-A-N-N-I M-A-R-I-A_a $LOVE_a$
'Gianni loves Maria.'

With a first person object, the verb sign retains its citation form and agreement is encoded through pronouns. We provide an example with the verb LOVE below.

IX_2 IX_1 LOVE
'You love me.'

Transitive verbs such as TAKE_CARE express agreement with the object through both orientation of the palm and direction of the path movement. Compare the two examples below: in (a) the verb selects for a third person object, whereas in (b) it selects a first person object. Crucially, in this instance the object does not need to be lexically realised through a noun phrase or pronoun: the direction and orientation of the verbal sign are enough to mark the object, thus showing overt manual agreement.

ht: a
bl-left: a

a. FATHER$_a$ SON$_b$ IX$_{3a}$ $_a$TAKE_CARE$_b$
'The father takes care of his son.'

b. IX$_2$ TAKE_CARE
'You take care of me.'

Notice that agreement between subject and object can optionally be marked non-manually by means of head tilt and body lean towards the position associated to the subject, and shoulder of the signer directed towards the locus in space associated with the object.

Transitive verbs (or verbs used transitively, like BREAK) displaying one point of articulation in the signing space must agree with the direct object.

CHILD COMPUTER$_a$ BREAK$_a$
'The child breaks the computer.'

Ditransitive agreement verbs with two points of articulation in the signing space can: i) show overt manual morphological agreement with the subject [MORPHOLOGY 3.1.1.1] and the indirect object, which corresponds to the final location of the path movement (a); ii) show agreement with the three arguments, namely the subject, the direct object and the indirect object. In these instances, the direct object is marked by the hand configuration, whereas the final location of the movement agrees with the indirect object, as in (b). Notice that in (b) it is the classifier predicate that allows to incorporate the direct object.

a. MARIO$_a$ IX$_{3a}$ ENVELOPE IX$_{3a}$ SARA$_b$ $_a$GIVE$_b$
'Mario gives an envelope to Sara.'

b. L-U-C-A$_a$ G-I-A-N-N-I$_b$ DRINKING_GLASS $_a$CL(unspread curved open 5) : 'give_glass'$_b$
'Luca gives a/the glass to Gianni.'

It is important to consider that classifier predicates also allow some plain verbs, which usually do not display overt morphological agreement with their arguments, to show overt morphological agreement with their object in transitive constructions. As we can see in the example below, when a plain verb is realised through a classifier predicate, the handshape defines the theme argument, thus it shows overt morphological agreement with the object.

L-U-C-A SANDWICH CL(flat open 5): 'eat_sandwich'
'Luca eats a sandwich.'

Ditransitive agreement verbs whose starting point is on the body, like SAY, show overt manual agreement with the indirect object, whose position in the space corresponds to the final location of the path movement (a). Crucially, if the verb selects for a first person object, the verb path ends on the signer's body rather than in the neutral space, as in (b).

ht: a
bl-left: a
a. L-U-C-A_a P-A-O-L-O_b LIE SAY_b
'Luca tells a lie to Paolo.'

b. IX_2 CRY $_2SAY_1$
'You are crying, tell me (why).'

Alternatively, this class of verbs can overtly mark manual agreement through the addition of a path movement connecting their point of articulation to the position in the signing space corresponding to the indirect object. This is illustrated below.

IX_{3a} SAY IX_{3b}
'He tells him.' (recreated from Pizzuto 2004, 194)

It is worth mentioning the case of the verb EXPLAIN, which is articulated close to the mouth and displays a repeated alternating circle movement directed outward [PHONOLOGY 1.3]. The direction of the movement marks the indirect object. For second and third person indirect object, the movement is directed towards the dedicated location in the neutral space (a), whereas to mark a first person indirect object the verb sign modifies the direction of the movement and thus starts its articulation in the neutral space, rather than from the mouth, and moves inward (b). Again, in these instances the indirect object does

not need to be lexically specified since the verb movement addresses the signer's body, which corresponds to the first person. Optionally, agreement can be marked non-manually through head tilt and body lean towards the subject position, and eye gaze directed towards the indirect object.

ht: a
bl-right: a
eg: 3pl-coll

a. IX_{3a} TEACHER $\text{IX}_{3pl\text{-}coll}$ STUDENT IX_{3a} $\text{EXPLAIN}_{3pl\text{-}coll}$
'The teacher explains to the students.'

b. IX_2 MATHEMATICS $_2\text{EXPLAIN}_1$
'You explain mathematics to me.'

Ditransitive verbs such as TEACH, SHOW, ASK, show overt morphological agreement with the indirect object through both path movement and orientation of the palm. This holds either with a first person object (a), or with second and third person objects (b).

a. SISTER_a POSS_1 SON_b $_a\text{TEACH}_b$
'My sister teaches her son.'

hs

b. IX_3 MIRKO $_3\text{TEACH}_1$ CHESS RULE IX_1 UNDERSTAND IMPOSSIBLE_PA_PA
'Mirko tried hard to teach me the rules of chess, but I cannot understand them.'

A peculiar example is the verb TELL, a two-handed asymmetrical sign [PHONOLOGY 1.4.2] in which the dominant hand displays a repeated movement outward. The direction of the movement marks agreement with the indirect object, be it a second or third person indirect object (a). Crucially, this verb can be morphologically modified to show overt manual agreement with a first person indirect object by changing the starting point of the movement and moving inward, as illustrated in (b). Once again, the first person indirect object does not need to be lexically specified since the verb movement addresses the signer body, which corresponds to the first person.

a. MOTHER$_a$ SON$_b$ IX$_{3a}$ FAIRY_TALE TELL$_b$
'The mother tells her son a fairy tale.'

b. IX$_2$ FAIRY_TALE $_2$TELL$_1$
'(You) tell me a fairy tale.'

In backward verbs [LEXICON 3.2.2], the object (or the source) marker corresponds to the starting point of the movement in the neutral space, whereas the ending point marks the subject (or the goal). Some verbs belonging to this class are: COPY, TAKE_ADVANTAGE_OF, INVITE, TAKE, RECEIVE, CHOOSE.

BLACKBOARD$_a$ TEXT$_a$ STUDENT $_a$COPY
'The student copies the text from the blackboard.'

3.1.1.3 Locative markers

Sometimes the starting and end point of the verb agree with spatial locations, rather than with the verbal arguments. We refer to these verbs as spatial verbs [LEXICON 3.2.3]. In these constructions, the path movement connecting the two points of articulation conveys the movement or spatial location of the subject or object (animate or inanimate) of the event. Verbs that can convey locative agreement are GO, BRING_SOMEONE, ARRIVE, COME, GET_UP, GET_DOWN, WALK, GO_IN, GO_OUT.

IX$_3$ HOUSE$_a$ SCHOOL$_b$ $_a$GO$_b$
'He goes from home to school.'

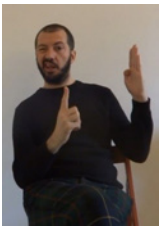
Therefore, the starting and end points of the path movement of the verb correspond to source and goal locative arguments, respectively. Alternatively, only one location may be specified, as in the following example.

TEACHER BOOK SHELF++$_a$ CL(flat open 5): 'put_book'$_a$
'The teacher puts the book on one of the shelves.'

The example above is also interesting because it shows how the two hands can be employed to localise two entities simultaneously. We illustrate this *Figure-Ground relationship* in the figure below for sake of clarity: the non-dominant (left) hand represents the shelf, thus functions as *ground*, namely the position in which the *figure* represented by the dominant right hand, i.e. the book, it's being located by means of the classifier predicate [MORPHOLOGY 5.1], which carries the locative marker.

dom: CL(flat open 5): 'put_book'$_a$
n-dom: CL(unspread 5): 'shelf'$_a$
'(To) put a book on a shelf'

The two hands can also be used to locate entities with respect to each other, thus both hands carry a locative marker.



dom: CL(G): 'lamp_be_located'
n-dom: CL(unspread 5): 'library_be_located'
'The lamp is next to the library.'

Dedicated classifier constructions can also be employed to define the static location of referents in space, defining real-word locations. In these instances, the classifier predicate displays a short movement downward as to place the referent. See the example below.

CHAIR^SOFT CL(unspread 5): 'be_located'
'The sofa is located there.'

In LIS, we also find some spatial verbs that have no movement, thus they convey agreement simply by localising the sign for the verb in the position dedicated to the location argument, as in the example below.

S-A-R-A THREE^YEAR ROME$_a$ STAY$_a$
'Sara stayed in Rome for three years.'

3.1.2 Number markers

LIS verbs can display further modifications to convey number agreement. Specifically, the verb can be reduplicated or displaced to mark the number of arguments involved in the event. Note that in LIS, the verb usually inflects to mark object number. To express subject number, LIS mostly employs quantifiers and numerals [LEXICON 3.10]. As for person and locative agreement, plain verbs do not inflect for number because they are articulated on the signer's body.

3.1.2.1 Dual

Agreement verbs [LEXICON 3.2.2] mark duality through i) addition of the non-dominant hand in one-handed signs or ii) reduplication of the verb, whose starting and ending point of articulation can be changed in order to convey duality of the subject or object. Example (a) shows that the verb agrees with the dual object by being articulated as a two-handed sign; (b) displays the same strategy employed to mark duality of the subject, whereas (c) is an example of reduplication of the verb to convey duality of the object.

a. dom: G-I-U-L-I-A$_a$ M-A-R-I-A$_b$ G-I-A-N-N-I$_c$ BOOK $_c$GIVE$_b$
n-dom: $_c$GIVE$_a$
'Gianni gives one book to Giulia and Maria respectively.'

b. dom: G-I-U-L-I-A$_a$ M-A-R-I-A$_b$ $_b$PHONE_CALL$_1$
n-dom: $_a$PHONE_CALL$_1$
'Giulia and Maria call me.'

c. IX$_1$ G-I-U-L-I-A$_a$ M-A-R-I-A$_b$ $_1$PHONE_CALL$_a$ $_1$PHONE_CALL$_b$
'I call Giulia and Maria on the phone.'

In the same vein, backward verbs can mark duality of the source/object which is being copied, chosen or invited. The example below shows the reduplication of the backward verb sign COPY to convey duality of the source.

BOOK TWO CL(unspread 5): 'book'$_a$ CL(unspread 5): 'book'$_b$
STUDENT $_a$COPY $_b$COPY
'The student copies (a text) from two books.'

The same strategies are employed by that subclass of agreeing verbs which display only one point of articulation in the signing space corresponding to their single argument. The example below shows that the one-handed verb GROW_UP becomes a two-handed symmetrical sign in order to convey duality of the subject.

dom: CHILD_a CHILD_b TWO GROW_UP_b
n-dom: GROW_UP_a
'The two children are growing up.'

3.1.2.2 Multiple

LIS agreement verbs mainly inflect to mark plurality of the object. In contrast, a plural subject is marked by numerals and quantifiers. To convey plurality of the object, agreeing and spatial verbs can display specific morphological modifications: i) they can incorporate an arc movement from the contralateral to the ipsilateral side of the signing space to convey the meaning 'all', as exemplified in (a); ii) one handed-signs can be realised as two-handed signs, as in (b); and iii) they can be reduplicated in different locations in space, as exemplified in (c), to convey distributivity features. Reduplication applies to the articulation of the verb an indefinite number of times (usually three).

a. GIVE_{arc}
'Give to all.'

b. dom: GIVE_{arc}
n-dom: GIVE_{arc}
'Give to all.'

c. GIVE_{distr}
'Give to each one.'

When the object is a sign articulated in the signing space, which can be reduplicated to convey plurality, the verb can show overt agreement with it by being reduplicated in the same loci dedicated to the plural object, as in the example below.

MAN MANY HOUSE_a++ BURN_a++
'Many men burnt many houses.'

3.1.2.3 Exhaustive

Exhaustivity refers to number information, but it also specifies the position of members of a set within the signing space. Exhaustivity can be encoded in agreement and spatial verbs. It is conveyed through a distributive morpheme, which is expressed by a repetition of the verbal root and is always interpreted on the internal argument (the theme) in a transitive construction. In the example below, the repetition of the verb (EXAMINE++) marks numerosity and distribution of the object.

PROFESSOR IX STUDENT EACH++ CONTROL++
'The professor examines each of the students.'
(recreated from Mazzoni 2008, 164)

As for intransitive constructions, the distributive morpheme is admitted only with unaccusative verbs, such as MELT. In the example below, exhaustivity is marked by repetition of the verb.

PIECE_a PIECE_b PIECE_c BUTTER MELT_a MELT_b MELT_c
'Each piece of butter has melted.'
(recreated from Mazzoni 2008, 164)

3.1.3 Reciprocal markers

LIS verbs behave differently in expressing a reciprocal relation between their arguments depending on the class they belong to (plain verbs, agreement verbs, spatial verbs).

LIS has a reciprocal marker glossed EACH_OTHER [LEXICON 3.7.4] that can be employed to express reciprocity with plain verbs that, due to articulatory restrictions, don't mark reciprocity on the verb [SYNTAX 2.1.3.4].

IX_{1+2} UNDERSTAND EACH_OTHER
'You and I understand each other.'

Alternatively, plain verbs express reciprocity through *zero marking*, namely, the object slot of a transitive verb is left empty, as shown below:

IX_{1+3} LOVE
'We love each other.'

As opposed to plain verbs, agreement and spatial verbs can inflect to convey reciprocity:

i) One-handed signs, such as GIVE, are produced as two-handed signs in which the two hands move alternatively as independent signs, thus marking the two members of the reciprocal relation through *simultaneous reduplication*.

dom: $_{1}$GIVE$_{2}$ $_{2}$GIVE$_{1}$
n-dom: $_{2}$GIVE$_{1}$ $_{1}$GIVE$_{2}$

'We give (something) to each other.'

ii) Two-handed signs, such as DONATE, can realise reciprocity through *sequential reduplication*, namely the two-handed sign moves from the subject to the object and backwards.

EVERY_YEAR CHRISTMAS IX$_{3a+3b}$ $_{a}$DONATE$_{b}$ $_{b}$DONATE$_{a}$

'Every year at Christmas they give each other a present.'

Alternatively, the two-handed sign is produced as if the two hands functioned as independent articulators, moving alternatively between the positions of the two arguments of the predicate.

dom: $_{1}$DONATE$_{2}$ $_{2}$DONATE$_{1}$
n-dom: $_{2}$DONATE$_{1}$ $_{1}$DONATE$_{2}$

'(To) donate to each other.'

The reader is referred to [SYNTAX 2.1.3.4] for a more detailed description of reciprocity in LIS.

3.2 Tense

The previous sections have described how LIS verbs can inflect to mark agreement with their arguments. Here, we explore the morphological processes that LIS verbs can undergo in order to convey tense, besides employing lexical markers [LEXICON 3.3.1] and temporal adverbials.

3.2.1 Time lines

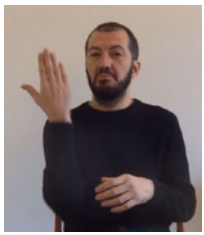
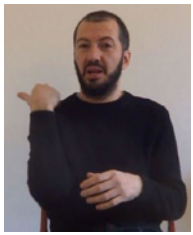
Temporal information is expressed in LIS through a spatial metaphor which visualizes time as a line with respect to the signer's body.

More specifically, the space in front of the signer represents the future, the space in which the signer is located, or the positions very close to the signer's body, represents the present, the space behind the signer represents the past. Therefore, points of the signing space can be considered abstract morphemes which combine with temporal adverbials or verbs in order to convey temporal information and are used as references to locate events in time. In general, in LIS this visual metaphor can be conveyed through non-manual markers occurring with the lexical sign for the verb [MORPHOLOGY 3.2.2], or it can be encoded into temporal adverbials.

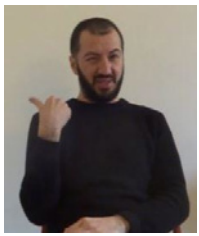
Temporal adverbials referring to the past display a movement and orientation of the palm towards the space behind the signer; temporal adverbials referring to the present are produced in front of the signer in a position very close to his/her body; temporal adverbials referring to the future are directed towards an indefinite point of the space in front of the signer. Being articulated more or less close to the body of the signer, temporal adverbials can locate events in the far past, near past, present, near future, future and far future. The time adverbials reported below show the realisation of the time line in LIS moving from the back to the front of the signer.

PAST

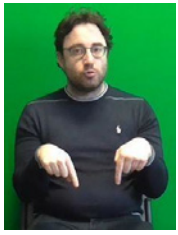
YESTERDAY

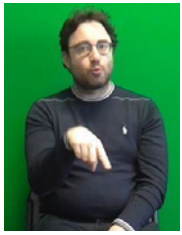
BEFORE



RECENTLY



TODAY



TOMORROW

FUTURE

3.2.2 Tense inflection

Tense inflection refers to the morphological processes able to modify the articulation of the verb sign in order to convey temporal information about the event.

LIS realises tense inflection by changing the position of the shoulders during the articulation of the verb sign: when the shoulders are aligned with the rest of the body, the action is taking place at the time of utterance (a); if the shoulders are tilted backwards, the action took place before the time of utterance, namely in the past (b); if the shoulders are tilted forward, the predicate defines a future event which will take place after the time of utterance (c). Therefore, tense inflection in LIS can be conveyed non-manually and, when it does, it displays the visual metaphor of the 'time as a line'. It is important to notice that the possibility of inflecting the verb to carry temporal information is restricted to the variety of LIS used in the Napoli-Salerno area.

shoulders-straight

a. G-I-A-N-N-I HOUSE BUY

'Gianni is buying a house.'

(recreated from Zucchi 2009, 101)

shoulders-backward

b. G-I-A-N-N-I HOUSE BUY

'Gianni bought a house.'

(recreated from Zucchi 2009, 101)

shoulders-forward

c. G-I-A-N-N-I HOUSE BUY

'Gianni will buy a house.'

(recreated from Zucchi 2009, 101)

When the sentence contains past and future temporal adverbials as independent lexical signs, non-manual inflection on the verb is absent, because tense in conveyed through the temporal adverbial.

PAST G-I-A-N-N-I HOUSE BUY
'Some time ago Gianni bought a house.'
(based on Zucchi 2009, 103)

3.3 Aspect

Aspectual information in LIS can be conveyed through lexical markers [LEXICON 3.3.2], adverbials or morphological modification of the verb sign, which specify whether the action is completed (perfective aspect) or not completed (imperfective aspect). The following sections describe the morphological processes LIS employs to express aspectual information, mainly consisting in movement manipulations, repetition and lengthening of the verb sign.

3.3.1 Imperfective

Imperfective aspect refers to events or activities which are not completed or that are still going on at the time of utterance. It can also refer to events which are habitual or that are repeated, irrespective of the event time (past, present, future). LIS can convey imperfective aspect through morpho-phonological modifications of the verb sign.

3.3.1.1 Habitual

Habitual aspect relates to events which are usual and happen repeatedly. In LIS, habitual aspect is conveyed through adverbials or rapid repetition and lengthening of the verb sign. Below, we provide an example for each strategy respectively.

a. EVERY_DAY CHILD CRY
'The child cries every day.'
(based on Bertone 2011, 222)

b. CHILD CRY++
'The child was always crying.'
(based on Bertone 2011, 222)

3.3.1.2 Continuative/durative

In LIS, continuative aspect is conveyed through morphological modifications consisting in a longer duration of the articulation of the verb sign or in its repetition. The longer articulation indicates that an event lasts indefinitely in time, without precise information about when it starts/started and ends/ended (a). Repetition, instead, indicates that the same event is repeated for an indefinite time. The verb is repeated at least three times (b). Furthermore, the verb sign can be marked by specific non-manual markers consisting of furrowed eyebrows (fe) and puffed cheeks (pc) (b), or open mouth (om) conveying the indefinite duration of the event, as in (a).

om
a. G-I-A-N-N-I WINDOW LOOK_AT
'Gianni is looking out of the window.'

fe
pc
b. STUDY++
'(S/he) studies/studied for an indefinite period of time.'

3.3.1.3 Conative

Conative aspect is a type of imperfective aspect which refers to the unfinished status of an event that was about to start. LIS can encode conative aspect morphologically, by modifying the articulation of the verb. To illustrate, compare the articulation of the verb FIGHT in (a), with the articulation in (b), which displays morphological modifications to encode conative aspect, glossed FIGHT.CON.

a. IX_1 IX_3 FRIEND IX_{1+3} FIGHT
'I had a fight with my friend.'

Context: You are having a drink with your girlfriend at the bar. A man hits you, and the two of you start arguing. You are about to have a fight when your girlfriend asks you to leave.

b. dom: MAN IX_a IX_1 $_1$COMMUNICATE$_{3a}$ $_1$FIGHT.CON$_{3a}$ GIRLFRIEND $_{3b}$ASK$_1$
NEG_O
n-dom: $_3$CL(G): 'move'$_1$
'A man hit me. We started arguing and we were about to have a fight when my girlfriend called me, thus we did not fight.'

As example (b) clearly shows, conative aspect can be realised in LIS by interrupting the articulation of the verb, which displays a reduced and unfinished movement.

3.3.2 Perfective

Perfective aspect refers to a closed and completed event. LIS can convey perfective aspect through morpho-phonological marking on the sign for the verb, or through lexical markers [LEXICON 3.3.2].

3.3.2.1 Iterative

Iterative perfective aspect refers to those events that, despite being repeated many times, are single completed events. Besides employing adverbs, LIS conveys the iterative nature of an event, action or situation through morpho-phonological modifications of the verbal sign. When expressing iterative perfective aspect, the movement of the verb is lengthened, repeated and wider with respect to the movement of the verb in its citation form. Despite their similarity, iterative aspect differs from habitual aspect [MORPHOLOGY 3.3.1.1] in displaying a slower articulation of the verb sign, marking the repetition of the event. The typical non-manual markers conveying iterative perfective aspect are furrowed eyebrows (fe) and squinted eyes (sq) produced simultaneously to the verbal sign.

fe
sq
MEET++

'(He/she) has met (him/her) several times.'

3.3.2.2 Inceptive/inchoative

As a type of perfective aspect, inceptive/inchoative aspect encodes the starting point of an action or state, which in the end is realised. To be more specific, inceptive aspect describes the beginning of an action, whereas inchoative aspect refers to the beginning of a state.

LIS does not encode these aspects through morphological modifications of the verb. It rather employs the aspectual marker DONE occurring with the mouthing of the Italian word corresponding to 'already' (i.e. *già*) to express inceptive aspect (a), and the verb BEGIN to

express inchoative aspect (b). An example for each strategy is provided below.

a. FILM BEGIN DONE
'The film is beginning.'

b. EXAM APPROACH IX_1 BEGIN FEEL_PANIC
'The exam is approaching, and I am starting to panic.'

3.3.2.3 Completive

Completive aspect is marked in LIS through the lexical manual sign DONE [LEXICON 3.3.2], which defines that the event is completed.

G-I-A-N-N-I HOUSE BUY DONE
'Gianni has bought a house.'
(recreated from Zucchi et al. 2010, 199)

3.4 Modality

In [LEXICON 3.3.3], we listed the manual markers of deontic and epistemic modality. Generally speaking, deontic modality conveys obligation, prohibition, necessity, recommendation, ability, permission, intention and volition. On the other hand, epistemic modality refers to the expression of the signer's judgment or evaluation about the likelihood of the event of the utterance. Signers can express their absolute certainty about the happening or not of an event (either past, present or future) based on their knowledge and evidences, or they can express their evaluations and hypotheses.

LIS encodes deontic and epistemic modality through lexical markers occurring with dedicated non-manuals, which can also spread on the entire sentence. Nevertheless, sometimes lexical signs can be dropped, and modality is encoded through non-manual markers alone. Crucially, the different non-manual markers employed specify the degree of certainty the signer has about his/her proposition. We describe the morphological strategies for deontic and epistemic modality, respectively, in the following sections.

3.4.1 Deontic modality

Deontic markers [LEXICON 3.3.3.1] in LIS can be accompanied by furrowed eyebrows (fe) and/or head nod (hn). Sometimes, the manual deontic marker can be dropped, and the non-manual markers spread on the verbal sign. In the example below, permission is encoded through head nod produced over the verb, in the absence of a manual deontic marker.

Context: you are driving, at the signal STOP you must stop the car. What do you do next?

cond _____ hn
LOOK_RIGHT LOOK_LEFT bare CL(unspread 5): 'car_move'
'You look to the right and to the left. If the road is empty, you are allowed to move ahead.'

Often, morphological modifications concern the deontic marker itself. In the example below, the modal MUST displays a slower and repeated articulation in order to emphasise the obligation being conveyed.

NO TODAY MUST++
'No, you have to do it today!'

3.4.2 Epistemic modality

The manual signs encoding epistemic modality in LIS [LEXICON 3.3.3.2] can display different non-manual markers, yielding different semantics. In general, we can distinguish between epistemic certainty and epistemic possibility. Certainty is mainly associated to furrowed eyebrows (fe) and head nod (hn). On the other hand, possibility can either involve squinted eyes (sq) or raised eyebrows (re) and head nod, sometimes associated to mouth corners down (md), depending on the confidence the signer has about the truth of the utterance and/or the likelihood of the event. Non-manual markers are mainly produced in correspondence to the epistemic manual markers, though they can sometimes spread on nearby signs.

Epistemic certainty is encoded through furrowed eyebrows and a strong head nod simultaneously articulated over the manual sign BE_ABLE. In so doing, the signer expresses his certainty about the likelihood of the event, since he knows that the external conditions allow its realisation. This is illustrated below.

fe
hn
IX$_1$ FRIEND POSS$_1$ IX$_1$ LOOK_FOR IX$_1$ FIND BE_ABLE
'I can find the friend I have been looking for.'

In order to emphasise the certainty about the ability of someone/something to perform an action, due to favourable external conditions, the sign BE_ABLE can be reduplicated and marked by repeated head nod, furrowed eyebrows and slightly puffed cheeks (pc). In the example below, we see that head nod and furrowed eyebrows are spread on the whole utterance, yielding the signer's certainty that the friend is able to come because he already knows the way.

pc
fe
hn
FRIEND COME BE_ABLE++
'I am sure my friend is able to come.'

Crucially, epistemic certainty can also be encoded by means of non-manual markers alone modifying the verb sign. In the example below, we see that the verb PASS is marked by a strong head nod and furrowed eyebrows.

fe
hn
LUCA EXAM PASS
'Luca will surely pass the exam.'

On the other hand, epistemic possibility encoding the judgment or evaluation about the likelihood of the event is expressed through different clusters of non-manual markers, yielding different degrees of feasibility.

Squinted eyes usually encode the doubts of the signer about the possible realisation of the event in the utterance. In the example below, these non-manuals spread on the entire sentence, conveying the signer's uncertainty.

sq
FRIEND IX$_1$ LOOK_FOR FIND BE_POSSIBLE(1)
'I (think) I can find the friend I am looking for.'

Raised eyebrows and mouth corners down, usually combined with a head tilt backwards (ht-b) are used to express that the event is possible but the signer is not sure about that due to lack of information. The non-manuals can occur with the epistemic markers BE_POSSIBLE(1) and BE_POSSIBLE(2) and spread on the whole sentence.

ht-b
re
md
FRIEND POSS$_1$ COME BE_POSSIBLE(1)

'I think my friend can come.'

Head nod, sometimes associated to raised eyebrows, yields a higher degree of possibility of the event due to the circumstances. The head nod usually occurs with the epistemic marker, but it can also spread on the preceding or following signs, as in the examples below.

hn
re
a. dom: LETTER IX(dem)$_a$ MOTHER WRITE BE_POSSIBLE(1)

n-dom: LETTER$_a$----------
'It is possible that my mother wrote this letter.'

hn
b. DATE TWO^FIVE DECEMBER TRAIN IX PLACE EMPTY BE_POSSIBLE(2)
hn
PALM_BACK

'It is possible to find free seats on the train on December 25th.'

Note that in (b) the signer articulates a final manual marker, glossed PALM_BACK, encoding that the event is possible due to the circumstances, but the signer has no evidence for it at the time of the utterance.

3.5 Negation

Negation in LIS is mainly conveyed through negative markers and n-words [SYNTAX 1.5.1.1], whose syntactic features are analysed in [SYNTAX 1.5.1.2]. However, there are some instances of negation as inflectional category, which will be explored in the next sections. Negation as inflectional category refers to the morphological modifications that predicates or sentences can undergo in order to convey negation,

besides employing lexical negative markers. Specifically, LIS verbs can i) incorporate negative elements, ii) be marked by specific non-manual markers or iii) display a completely different form to convey their negative counterpart.

3.5.1 Regular negation

The present section concerns those processes modifying the morphology of verb signs in order to convey negation. These processes are considered instances of regular negation in that the negative features incorporated remain visible. We will see that these processes can be conveyed through both manual and non-manual markers.

3.5.1.1 Manual markers

Manual markers of negation refer to instances of incorporation of a negative element within the articulation of the verb sign, which however remains identifiable. Incorporation can be either a sequential or simultaneous process. In sequential incorporation, the negative morpheme NOT combines with the verb stem. This is illustrated for the verbs KNOW (a), BE_ABLE (b) and WANT (c). The typical negative headshake (hs) occurring with the marker NOT can spread on the preceding verb stem.

a. hs
KNOW^NOT
'Do not know'

b. hs
BE_ABLE^NOT
'(To) not be able'

c. hs
WANT^NOT
'Do not want'

On the other hand, the modal CAN (see [SYNTAX 1.5.1.1.2] for details) allows the simultaneous incorporation of the negative element NOT. As we can see from the example below, the sign for the modal CAN (a) is a symmetrical two-handed sign articulated with both hands closed in the neutral space, displaying a short movement downward. To con-

vey the negative meaning, a left-to-right rapid movement is added, together with the typical negative non-manual marker. The resulting sign is CAN^NOT (b).

a. CAN

b. hs
CAN^NOT
'Cannot'

3.5.1.2 Non-manual markers

In general, in LIS negative non-manual markers alone cannot negate a predicate or a whole sentence, they must be articulated with a manual negative marker or n-words [SYNTAX 1.5]. However, in some central and southern varieties of LIS, we can find negation conveyed through the typical negative non-manual marker, namely headshaking (hs) alone, occurring with the sign for the verb.

hs
CAT_a DOG_b $_b$CHASE$_a$
'The dog does not chase the cat.'

3.5.2 Irregular negation

Irregular negation refers to those instances in which verbs display a completely different form for their negative counterpart. In such signs, the negative element cannot be identified and distinguished from the lexical verb. For these reasons, they are also referred to as opaque irregular negatives [SYNTAX 1.5.1.1.2]. In LIS, we find several examples. The negative counterpart of the positive existential glossed EXIST (a), which in LIS also corresponds to the verb 'have' [SYNTAX 2.1.5], is a manual sign that is completely different from its positive counterpart. This sign, EXIST.NOT (b), is marked by the specific non-manual marker for negation, i.e. headshaking (hs).

a. EXIST
'There is'
'(To) have'
'(To) exist'

hs
b. EXIST.NOT
'There is not'
'(To) not have'

To realise the negative counterpart of WANT (a), LIS employs the sign WANT.NOT, occurring with the non-manual marker for negation (b). See how they differ in the examples below.

a. WANT

hs
b. WANT.NOT
'Do not want'

Note that this negative irregular form (b) is a variant of the regular negative modal WANT^NOT illustrated in [MORPHOLOGY 3.5.1.1].

One further example is provided by the verb LIKE (a), whose negative counterpart is the sign LIKE.NOT, which is lexically specified for furrowed eyebrows (fe) and tongue protrusion (tp) (b). Notice that LIS employs the same sign for the verb WANT and the verb LIKE, but LIKE displays a slower articulation.

a. LIKE

fe
tp
b. LIKE.NOT
'(To) dislike'

To convey that an event has not taken place or it has not been completed, LIS employs a specific manual marker NOT_YET (b), which is considered a negative completive/perfective marker [LEXICON 3.3.2], namely it is the negative counterpart of the aspectual marker DONE in (a), (which cannot co-occur with negation).

a. DONE

b. NOT_YET

The deontic negative counterpart of the sign BE_ABLE (a) conveying ability [LEXICON 3.3.3.1] is IMPOSSIBLE_PA_PA (b), which refers to a situation in which the desired result cannot be achieved despite several attempts.

a. BE_ABLE
'(To) be able'

hs
b. IMPOSSIBLE_PA_PA
'(To) not be able'

The negative counterpart of the sign BE_ABLE (a) encoding epistemic certainty [LEXICON 3.3.3.2] is IMPOSSIBLE_NO_WAY (b). This indicates that there is no possibility at all that the event can happen due to absence of favourable conditions.

a. BE_ABLE
'Can'

hs
b. IMPOSSIBLE_NO_WAY
'(To) be absolutely unlikely to happen'

Information on Data and Consultants

The descriptions in this chapter are based partially on the references below and on the elicitation of new data. The linguistic data illustrated as images and video clips have been checked through acceptability judgments and have been reproduced by Deaf native-signing consultants involved in the SIGN-HUB Project.

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4 Nominal inflection

Summary 4.1 Number. – 4.2 Localisation and distribution.

The present chapter explores the morphological processes that LIS nouns can undergo to convey information of number and localisation/distribution, without employing numerals, quantifiers or classifiers. These inflectional processes can be realised both manually and non-manually.

Nouns in LIS can be divided into two classes: nouns articulated in the signing space belong to the class of inflectional nouns; nouns articulated close or on the signer's body are comprised into the class of invariable nouns [LEXICON 3.1]. The possibility of displaying inflectional processes depends on both phonological and semantic constraints for both the classes of nouns. When inflectional processes are not allowed, LIS employs other strategies involving numerals (a) [LEXICON 3.10.1], quantifiers (b) [LEXICON 3.10.2] or classifiers (c) [MORPHOLOGY 5]. We provide an example for each strategy here for ease of clarification.

a. BOOK TWELVE CL(unspread 5): 'take'
'I take twelve books.'

b. MAN MANY
'Many men'

c. TABLE BOOK CL(unspread 5): 'book_be_located'++
'There are several books on the table.'

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Notice that besides these strategies, plurality can be conveyed through inflection of the verb sign [MORPHOLOGY 3.1.2.2].

4.1 Number

In these sections, we see the morphological modifications applying to LIS nominal signs to convey nominal plural marking. In general, manual inflectional processes are displayed by nouns articulated in the signing space, whereas invariable nouns can convey plurality by means of numerals, quantifiers or classifiers, or through specific non-manual markers occurring simultaneously to their articulation. However, we will see that there are some exceptions affecting some nouns of both the inflectional and invariable class.

4.1.1 Manual marking

Manual marking refers to the morphological processes modifying the articulation of the nominal signs in order to convey plurality. In general, morphological modifications are displayed by signs belonging to the class of inflectional nouns. In LIS we find four main processes, which are described and exemplified below.

i) reduplication with dislocation: the movement of the sign for the noun is repeated and displaced within the signing space. This is exemplified by the sign HOUSE, whose citation form is shown in (a). To convey plurality, the sign is reduplicated and dislocated within the signing space (b).

a. HOUSE

b. HOUSE++$_{\text{ipsi}}$
'Houses'

The same holds for one-handed signs such as CHILD (a), whose plural form derived through reduplication with dislocation is provided in (b).

a. CHILD

b. CHILD++$_{\text{ipsi}}$
'Children' (based on Bertone 2011, 99)

ii) simultaneous reduplication by the non-dominant hand: one-handed signs can be articulated as two-handed signs in order to convey plurality. This is illustrated with the sign PERSON (a), which conveys numerosity by being articulated as a two-handed sign (b).

a. PERSON

b. dom: PERSON++
n-dom: PERSON++
'People'

Interestingly, the sign CHILD can convey plurality by means of this morphological process as well, as illustrated below.

dom: CHILD++
n-dom: CHILD++
'Children'
(based on Bertone 2011, 99)

iii) reduplication without dislocation: plurality is conveyed by reduplicating the movement of the sign, which however does not change position within the signing space. To illustrate, the sign HOUR in its citation form (a) displays one single movement. In order to convey the plural, the sign can be reduplicated an indefinite number of times (b).

a. HOUR

b. HOUR++
'Hours'

iv) sideward movement without reduplication. This strategy is attested for the sign CHILD, which can incorporate a sideward movement without being reduplicated to convey the meaning 'children', as shown below.

$\text{CHILD}_{\text{ipsi}}$
'Children'
(based on Bertone 2011, 99)

However, there are some signs that cannot show overt morphological marking to convey plurality despite being articulated in the neu-

tral space. These are: KEY, SCISSORS, PEN, PLUMBER, SALAMI, PAINT_BRUSH. These nouns cannot be reduplicated to convey information of numerosity because they are phonologically homophonous to the correspondent verb signs in all parameters but movement. Therefore, reduplication of this signs actually conveys a verbal meaning rather than plurality. We see a couple of examples below. In its citation form, the sign SCISSORS is articulated as in (a). The reduplication of the sign in the signing space results in the verb CUT_WITH_SCISSORS (b).

a. SCISSORS

b. SCISSORS CUT_WITH_SCISSORS
'(To) cut with scissors.'

The sign KEY is articulated in its citation form as in (a). When reduplicated in the signing space, the sign conveys the meaning 'lock several doors' (b).

a. KEY

b. LOCK++
'(To) lock several doors.'

Therefore, these nouns employ numerals, quantifiers or classifiers to carry plurality features, as it happens for most of the nouns articulated on the signer's body. See in example (a) below the plural form of the sign KEY conveyed through the quantifier MANY, and in (b) the plural form of the sign SCISSORS conveyed through reduplication of the dedicated entity classifier.

a. KEY MANY
'Many keys'

b. SCISSORS CL(V): 'scissors_be_located'++$_{\text{ipsi}}$
'Many scissors'

4.1.2 Non-manual marking

The morphological strategies described in [MORPHOLOGY 4.1.1] for inflectional nouns can be combined with dedicated mouthings or mouth gestures. For instance, the plural form of the sign HOUSE, derived through reduplication with dislocation (a) is marked by the mouthing

of the vowel [a] (the first vowel of the corresponding Italian word *casa*) combined with furrowed eyebrows (fe). The plural form HOUR++ (b), instead, is marked by the vowel [o] (the first vowel in the corresponding Italian word *ora*) combined with squinted eyes (sq).

fe
[a]
a. HOUSE++$_{ipsi}$
'Houses'

sq
[o]
b. HOUR++
'Hours'

Nouns articulated close or on the signer's body generally do not allow overt inflectional processes due to phonological constraints. However, some nouns can be marked by a specific non-manual marking in order to convey plurality: the signer repeats the articulation of the nominal sign for at least three times and marks each articulation through a head nod (hn) and/or a non-manual displacement moving the head from left to right. To illustrate, we show below the occurrence of these morphological modifications affecting the sign WOMAN in order to convey the meaning 'women'.

a. WOMAN

hn
b. WOMAN++
'Women' (based on Pizzuto, Corazza 1996, 182)

In order to convey plurality, the articulation of the sign CAT is repeated and it is accompanied by non-manual displacement moving the head from left to right.

a. CAT

b. CAT++
'Cats'

This strategy is detected only for some nouns: WOMAN, MAN, CAT, DOG, MOTHER and FATHER. However, it is not obligatory, and it is usually employed to convey an additional emphatic meaning.

4.2 Localisation and distribution

Besides employing classifiers [MORPHOLOGY 5], information of localisation and spatial distribution can be conveyed through overt morphological modifications of the articulation of the noun sign, which can be i) dislocated within the signing space, thus being articulated in a point of the signing space which is different from the point of articulation of the sign in its citation form, and/or ii) reduplicated. Reduplication simultaneously conveys information of both number and position, without the articulation of other elements (such as quantifiers or classifiers). In such cases, the loci of the signing space do not have grammatical functions of marking the arguments of the predicates, but they define the position of referents, thus space has an isomorphic function. In the example below, the signer specifies both number and position of the three boxes, without recurring to numerals or quantifiers.

BOX_a BOX_b BOX_c
'A box on the right, one in the middle, and one on the left.'

When nouns cannot be displaced within the signing space due to phonological constraints (point of articulation or complex movement), to convey localisation and distribution they occur with pointing signs [LEXICON 3.7] or classifiers, which position them within the signing space [MORPHOLOGY 5] thus functioning as proforms. For instance, the sign MOTORCYCLE (a) is a two-handed asymmetrical sign that needs an entity classifier to display both features of number and localisation, through the incorporation of a sideward movement. The sign for PEN, instead, is one of those signs whose reduplication carries verbal meaning [MORPHOLOGY 4.1.1], therefore it needs a classifier to be reduplicated and located in the signing space, as in (b).

a. MOTORCYCLE CL(3): 'vehicle_be_located'$_{ipsi}$
'The motorcycles are (parked) there.'

b. PEN CL(G): 'pen_be_located'++
'There are many pens on the table.'

Information on Data and Consultants

The descriptions in this section are based on the references below. For information on data and consultants see the references. The video clips and images exemplifying the linguistic data have been produced by LIS native signers involved in the SIGN-HUB Project.

Authorship Information

Elena Fornasiero

References

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5 Classifiers

Summary 5.1 Predicate classifiers. – 5.2 Size-and-Shape Specifiers (SASS).

Sign language classifiers are morphological categories which denote both animate and inanimate entities by depicting one or more salient properties by means of dedicated handshapes. Specifically, entities are classified considering their visual-geometric characteristics, the abstract semantic category, their handling or manipulation. Classifiers belong to the non-core lexicon of sign languages in that their form is visually motivated considering the external properties of referents, and they can display modifications in configuration which correspond to changes in meaning [LEXICON 1.2.1]. Despite being iconic, classifiers are semantically underspecified since they denote entities considering one specific property. In so doing, they represent classes of referents and the same handshape can refer to different entities which are, however, sharing some properties.

Classifiers in LIS can appear in nominal domains following the nominal sign for the referent and functioning as proforms. The overt realisation of the lexical sign for the referent seems to be optional in spontaneous sign discourse in LIS. Being pronominal elements, they can be used as morphological devices with all types of nouns, allowing i) to trace back to the referent within the discourse [PRAGMATICS 2.2.2]; ii) to locate invariable nouns [LEXICON 3.1] within the signing space in order to realise agreement. As introduced in [MORPHOLO-

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GY 4.1], body-anchored nouns and nouns displaying complex movement cannot be modified to carry numeral inflection or to convey agreement. Therefore, they are followed by a classifier which can be displaced in space to realise agreement or be inflected for number. In example (a) below, we see that the reduplication of the classifier for BOOK conveys both information of number and location by being reduplicated within the signing space; in (b), instead, the entity classifier functions as a pronoun for the sign SHOE and it is employed to realise agreement with the modifiers, which are articulated in the same locus dedicated to the classifier.

a. TABLE BOOK CL(unspread 5): 'book_be_located'++
'There are several books on the table.'

b. dom: SHOE SASS(curved open 5): 'pointed_toe'$_a$ AREA$_a$ COLOUR PINK
n-dom: SHOE CL(unspread 5): 'shoe'$_a$
'A pink shoe with pointed toe.'

LIS classifiers combine with verbal roots of motion, handling or location resulting in constructions called *predicate classifiers*, which indicate how the referent (denoted by the handshape) moves through space, how and where it is located, and/or how it is handled. In LIS, as in other sign languages, we detect three main categories of predicate classifiers: entity classifiers [MORPHOLOGY 5.1.1], bodypart classifiers [MORPHOLOGY 5.1.2], handle classifiers [MORPHOLOGY 5.1.3]. Size-and-Shape Specifiers (SASS) [MORPHOLOGY 5.2] constitute a distinct category since they include classifiers occurring in nominal domains conveying information about the external properties of the referent, such as its size and shape, thus functioning as adjectives.

We explore the handshapes detected in LIS for each semantic category of classifiers in the following sections.

5.1 Predicate classifiers

Predicate classifiers are morphologically complex constructions resulting from the combination of a classifier handshape with a movement reproducing the path-movement, the handling or position of the referent. Specifically, the handshape that identifies the referent by denoting salient characteristics constitutes the lexical root, whereas the movement feature associated to the classifier to convey the location, movement or handling of the entity constitutes the verbal root. Movement can be towards several directions of the signing space and

following different paths, thus reflecting the movement of the entity in the real word. In LIS, we identify four kinds of root: i) action/movement root (the movement of the handshape corresponds to the movement of the referent), ii) manner root (the movement associated to the classifier describes how the entity moves), iii) contact root (the movement defines the position and the spatial relation of the entity with respect to other referents), and iv) stative/descriptive root (the movement of the hand(s) is necessary to convey the shape and place of the referent).

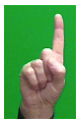
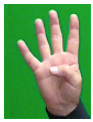
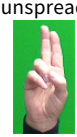
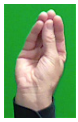
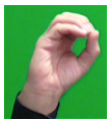
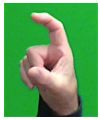
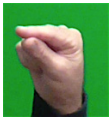
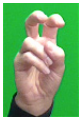
The nature of the predicate depends on the classifier selected: entity classifiers realise unaccusative predicates; bodypart classifiers form unergative predicates; handle classifiers results in transitive constructions [SYNTAX 2.1.1.5].

The following sections provide the inventory of the handshapes belonging to the different categories of classifiers attested in LIS. It is important to notice that all the handshapes belong to the phonological inventory of LIS [PHONOLOGY 1.1]. Moreover, handshapes can modify the quantity of selected fingers, be reduplicated or be articulated as two-handed signs in order to encode plurality and size of referents.

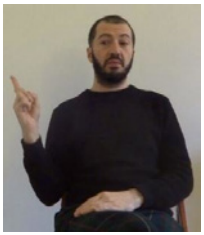
5.1.1 Entity classifiers

Entity classifiers are handshapes denoting animate or inanimate referents considering their shape as a whole, or the semantic category to which they belong. They occur with verbs expressing the motion of the referent or its localisation in space. They may be used in intransitive unaccusative predicates encoding the theme subject [SYNTAX 2.1.1.5]. Movement for localisation consists in a short movement towards the plane in which the classifier is positioned in order to convey the position of the entity in space. The plane can be horizontal (for instance, a table) or vertical (for instance, a wall). On the other hand, when the predicate conveys the movement of the entity, this movement associated to the handshape can be of different kinds (straight, circle, zigzag), on different planes and towards different directions. The LIS handshapes belonging to this category are listed in the following table and described below.

Table 1 List of handshapes that can appear in entity classifiers in LIS

G 	4 	5	unspread 5	unspread V 
flat closed 5 	F	curved closed 5 	spread curved open 5	unspread curved open 5
curved open L 	flat closed L 	flat open 3	L	Y
curved open V 	3	flat open L	V	

Handshape G denotes long and thin entities: humans, animals (snakes), objects (pens, pencils, poles, knives, toothbrushes, branches, trees) or vehicles (rockets). It can convey how the entity moves in space, or its position.



a. CL(G): ‘person_move’
‘Person coming in.’

b. CL(G): ‘rocket_take_off’
‘The rocket is taking off.’

Handshape 4 is used to indicate that four people are walking, or it can be used to convey plurality and location of long and thin entities in general. To convey plurality, it can be articulated as a two-handed sign. In (a) it denotes people waiting in line, whereas in (b) it conveys the position of pillars forming a colonnade. Notice that the classifier predicates are preceded by the lexical signs for the referents, here PERSON in (a) and PILLAR in (b).

a. PERSON++ CL(4): ‘people_in_line’
‘People standing in line.’

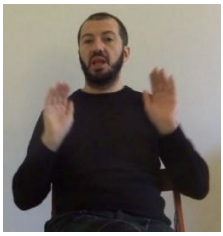
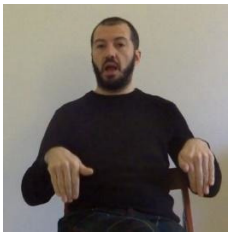
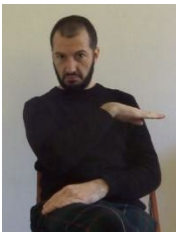
b. PILLAR CL(4): ‘pillars_located_as_colonnade’
‘The pillars form a colonnade.’

Handshape 5 can be employed to refer to a crowd or to many people moving all together, like in a parade. As we can see in the example below, it configures as a two-handed sign and the distance between the two hands defines the size of the crowd.

CL(5): ‘crowd_be_located’
‘Crowd.’

Unspread 5 (either with adducted or crossed thumb) classifies flat and wide entities: vehicles (4-wheels vehicles, trains), objects (books, tables, paintings, beds, sofa, doors, carpets), and surfaces. It can convey both the movement (a) or location (b) of the referent.

a. CAR CL(unspread 5): ‘car_move’
‘The car is moving.’

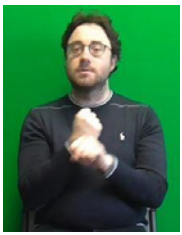




b. SOFA CL(unspread 5): ‘sofa_be_located’
‘The sofa is there.’

Unspread V can be used for flat entities, narrower than the ones denoted by the handshape above (for instance, stickers). It is mainly used to convey the position of the entity with respect to something else. In the example below, the signer conveys the position of the sticker on the cover of the book: unspread 5 indicates the book, unspread V refers to the sticker.

dom: NAME CL(unspread V): ‘sticker_be_located’
n-dom: CL(unspread 5): ‘book’
‘The noun (sticker) on the book.’

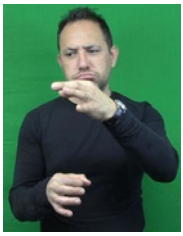
Flat closed 5 is a generic classifier for positioning animate referents, objects of big dimensions (statues, trees, columns) as in (a), or objects with a roundish shape (for instance, the classifier for LIGHTBULB in (b)) within the signing space or with respect to other referents.



a. SCULPTURE CL(flat closed 5): ‘sculpture_be_located’
‘The sculpture is located there.’

b. dom: CL(spread curved open 5): ‘lamp’
n-dom: CL(flat closed 5): ‘lightbulb_be_located’
‘The lightbulb is inside the lamp.’

Handshapes F and curved closed 5 are employed for thin and roundish objects (poles, table-legs), or small two-dimensional and spherical objects (little stones, buttons, watches, coins). In the example below, handshape F denotes coins piled up.



CL(F): ‘coins_piled_up’
‘A pile of coins’

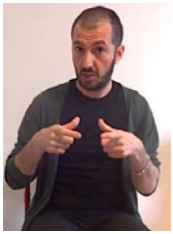
Spread curved open 5 is used for three-dimensional rounded or spherical entities, such as fruits and vegetables, big animals, or vehicles (balloons). It can also denote very big entities such as houses, churches or even villages.

HOUSE CL(spread curved open 5): ‘house_be_located’
‘The house is located there.’

Unspread curved open 5 refers to three-dimensional cylindrical and curved entities (pipes, rolled-up carpets, binoculars), or small containers (glasses, cups, bottles). In the example below, the two hands denote two different objects conveying their reciprocal positions by employing two different handshape classifiers.

dom: PLATE CUP CL(unspread curved open 5): ‘cup’
n-dom: PLATE CL(curved open L): ‘plate’
‘The big cup is on a small plate.’

Curved open L is employed for roundish two-dimensional objects (plates, frames, clock-faces, but also small cups).



CL(curved open L): ‘plate’

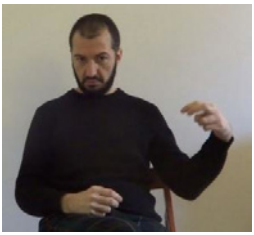
Flat open L or flat open 3 can denote narrow two-dimensional square/rectangular objects such as stickers or stripes. In the example below, the classifier is used to describe the position of the stripes of the carpet.

dom: CL(flat open L): 'stripes_be_located'
n-dom: CL(unspread 5): 'carpet'
'The stripes on the carpet.'

Handshape L is a classifier for square two-dimensional objects (paintings, mirrors).

Handshape Y is the classifier for phone handsets and airplanes. Associated to a verb of motion, it conveys the journey and the path of the airplane.

Curved open V can be used for chairs or sleighs. If reduplicated or articulated with both hands, it conveys plurality.



CHAIR CL(curved open V): 'chair_be_located'
'The chair is positioned there.'

Handshape 3 denotes two-wheels vehicles (bikes, motor-cycles). It can convey their position (a), or their path-movement (b). Notice that in (a) sideward movement conveys both location and plurality.

a. MOTORCYCLE CL(3): ‘vehicle_parked’
‘The motorcycles are parked there.’

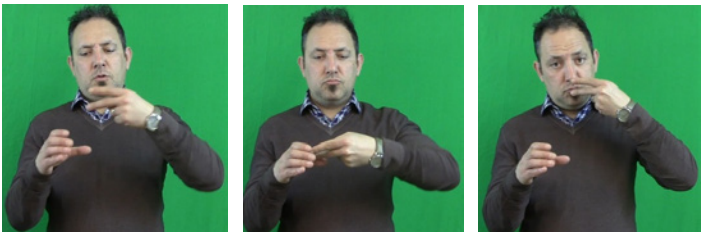
b. MOTORCYCLE CL(3): ‘vehicle_move’
‘The motorcycle is going.’

Flat closed L, flat open L, curved open L, or unspread curved open 5 can also be employed to convey information about changes in length, height or volume of some entities. The handshape selected expresses a decrease or an increase, being more or less open, or displaying more or less fingers selected. For instance, they can denote a cigarette becoming shorter, a liquid that diminishes in a glass, a pile of book or papers which is reducing.

CIGARETTE CL(flat open L): ‘cigarette_reduce’
‘The cigarette becomes shorter while smoking.’

Handshape V can denote objects such as scissors or chopsticks for Oriental food. In (a), this handshape is used to convey plurality and location by being reduplicated within the signing space; in (b) it denotes the chopsticks used to eat.

a. CL(V): ‘scissors_be_located’++
‘There are many scissors here.’

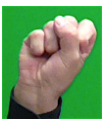
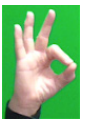
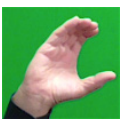
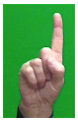
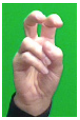
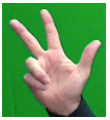
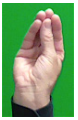


b. dom: CHOPSTICK CL(V): ‘eat_with_chopsticks’
n-dom: CL(unspread curved open 5): ‘box’
‘Eating Chinese food with chopsticks.’

5.1.2 Bodypart classifiers

In LIS, entities can be denoted considering only one part, for instance a part of the body. As entity classifiers, bodypart classifiers can express the motion and location of the referent. However, they form unergative predicates. The present section provides a list of handshapes functioning as bodypart classifiers in LIS, which are collected in the table below.

Table 2 List of handshapes that can appear in bodypart classifiers in LIS

unspread 5	closed 5	F	unspread curved open 5	V
				
G	curved open V	3	flat closed 5	
				

Unspread 5 denotes human's feet.

THREAD CL(unspread 5): 'feet_walk'
'A person walking on a rope.'

Closed 5 refers to the head of human referents (a), or it can denote animals of big dimensions (elephants, rhinoceros) by referring to their paws (b). In such instances, it is articulated with both hands moving alternatively and oriented downward.

a. dom: KEY FALL IX$_1$ TABLE IX$_1$ TAKE IX CL(closed 5): 'head_slam'$_a$
n-dom: TABLE CL(unspread 5): 'table'$_a$
'I slammed the head against the table while picking up the keys which were fallen.'

b. ELEPHANT CL(closed 5): 'elephant_walk'
'An elephant is walking.'

F usually denotes eyes of human referents.

NOISE IX$_1$ CL(F): 'eyes_look_at'
'I heard a noise and I looked in that direction.'

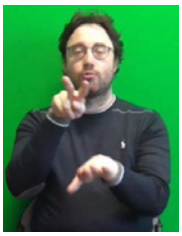
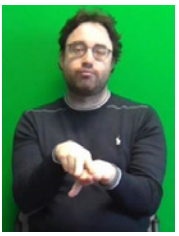
Unspread curved open 5 can be employed as classifier for the mouth to convey, for instance, surprise or astonishment, as in the example below.

CL(unspread curved open 5): 'astonished'
'I am astonished.'

Handshape V, oriented downward, is usually employed to denote humans by referring to their legs. It can be used to describe a person walking, the two fingers move alternatively as legs do. It can incorporate a peculiar movement (zig-zag, straight, circle) to convey the way

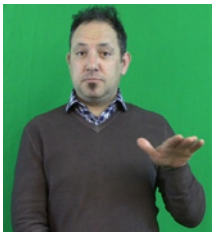
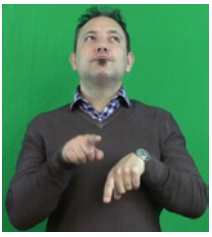
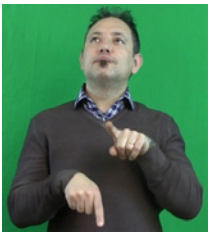
and the direction of the walking, as in (a). It can also be employed to denote a person lying in bed, as in (b).

a. CHILD CL(V): ‘child_walk’
‘The child is walking.’

b. dom: CL(V): ‘person_lie’
n-dom: CL(unspread 5): ‘bed’
‘A person lying in bed.’

In the same vein, handshape G can denote a person walking by referring to the legs. It can be used when the signer wants to emphasize the way in which the person walks. It is articulated with both hands moving alternatively and oriented downward. The movement reflects the steps while walking.

CHILD CL(G): ‘leg_walk’
‘The child is walking.’

Curved open V denotes a sitting or kneeling person while referring to the bent legs, or it denotes small animals in general. In the example below, the two hands refer to two different human referents who are sitting at a table: the dominant hand (left hand) indicates a man sitting at one side of the table, whereas the non-dominant hand (right hand) designates a child sitting at the opposite side. The classifier referring to the child is further marked by diminutive non-manuals consisting of squinted eyes and tongue protrusion [MORPHOLOGY 2.2.1].

sq
tp
dom: MAN CHILD CL(curved open V): 'man_sit'
---
n-dom: CL(curved open V): 'child_sit'$_a$

'The man and the child are sitting (at the table).'

Handshape 3 is usually employed to denote chickens, ducks or frogs, referring to their paws. It is articulated with both hands moving alternatively and oriented downward.

CHICKEN CL(3): 'chicken_walk'
'A chicken is walking.'

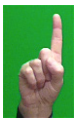
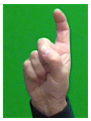
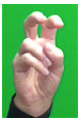
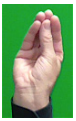
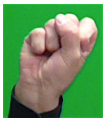
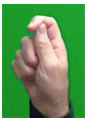
Flat closed 5 is usually employed to convey the walking of animals of small dimensions (dogs, cats, foxes) referring to their paws. It is articulated with both hands moving alternatively and oriented downward.

DOG CL(flat closed 5): 'dog_walk'
'A dog is walking.'

5.1.3 Handle classifiers

Handle (also called handling) classifiers denote entities by referring to the part or the way in which they are handled. They combine with verbs referring to the holding or to the manipulated motion of referents. Since handling and holding imply the presence of an agent manipulating an object, they form transitive predicates. Handshapes denoting objects used as instruments belong to this category as well. The present table provides a list of handshapes functioning as handle classifiers in LIS, which will be described below.

Table 3 List of handshapes that can appear in handle classifiers in LIS

G 	curved open G 	curved open V 	F	flat closed 5 
flat open 5	unspread curved open 5	closed 5 	closed G 	L
unspread 5	curved closed 5			

The G handshape can denote instruments such as knives, screwdrivers or toothbrushes.

CL(G): 'brush_teeth'
'Brushing teeth.'

Curved open G and curved open V are used to indicate that an object is hung somewhere. The example refers to a painting hanging to a nail on the wall.

PAINTING CL(curved open G): 'hang_ painting_with_nail'

'Hanging a painting.'

Handshape F indicates the handling of thin and light entities (pens, pencils, flowers, papers, thin books).

BOOK CL(F): 'take_thin_book'

'Taking a thin book (from the bookshelf).'

Flat closed 5 is used to convey the holding of flat and light objects such as sheets, as in the example below.

SHEET CL(flat closed 5): 'hold_sheet'

'(The child is) holding the sheet.'

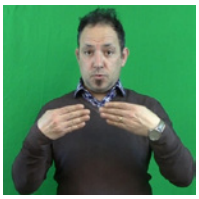
Flat open 5, more or less open, and unspread curved open 5 are used for three-dimensional thick objects (big books, bricks, boxes, pipes, cups).

BOOK CL(F): ‘take_thick_book’
‘Taking a thick book (from the bookshelf).’

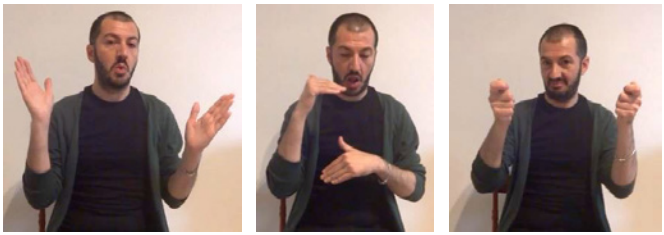
Closed 5 mainly denotes the handling of bags and suitcases (this is also an example of lexicalised classifier defining the lexical sign for SUITCASE or BAG, see [LEXICON 1.3.1].

CL(closed 5): ‘hold_suitcase’
‘Picking up a (heavy) suitcase.’

Closed G can be used to refer to small objects used as instruments such as keys, toothbrushes, wooden spoons or small paint brushes. Furthermore, it can denote doors being opened (a), paintings being hung up (b), or the holding of a newspaper (c).



a. DOOR CL(closed G): ‘handle_door’
‘Opening the door.’



b. PAINTING CL(closed G): 'hang_painting'

'Hanging a painting.'

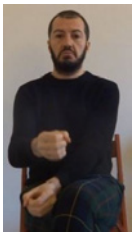
c. dom: READ
n-dom: CL(closed G): 'hold_newspaper'
'Reading the newspaper.'

Unspread 5 can be used to refer to paint-brushes used as instruments.

L can be employed as handling classifier for two-dimensional thin and light objects such as mirrors, as in the example below.

MIRROR CL(L): 'pick_up_square_mirror'
'Picking up the square mirror.'

Curved closed 5 can be used as handle classifier for three dimensional cylindrical objects such as pipes or table legs. In the example below, the signer is holding the central pedestal of a small table.



CL(curved closed 5): 'hold_pedestal'
'Holding the pedestal.'

5.2 Size-and-Shape Specifiers (SASS)

The present section concerns a different category of classifiers detected in LIS, namely size and shape specifiers (SASS). Crucially, SASS are distinct from the other categories of classifiers analysed so far in that: i) they do not classify referents, rather they specify information about their size and shape; ii) the movement they display does not describe the path movement of the entity but rather its size and shape; iii) they are not used to trace back reference in a discourse. For these reasons, they appear in nominal domains, functioning as adjectives, either attributive or predicative (see [LEXICON 3.4] and [SYNTAX 4.5] for details).

However, SASS do share some properties with the other categories of classifiers: i) they can display changes of phonological parameters which correspond to changes in meaning; ii) they are polymorphemic, thus their meaning is compositional; iii) they are visually motivated, and their meaning depends on the discourse context. As a consequence, they belong to the LIS non-core lexicon [LEXICON 1.2].

SASS in LIS can be grouped either phonologically, if we consider their phonological structure, or semantically, if we consider the meaning they convey.

Phonologically, they can be grouped into 'static' and 'tracing'. Static SASS describe the shape and size of the entity without displaying movement, as in (a), while tracing SASS display movement to outline the shape and size of the entity, as in (b).

a. SASS(curved open L): ‘round’ (about a table)
‘Round table’

b. SASS(curved open F): ‘round_thin’ (sc) SASS(curved open 5): ‘round_large (pc) SASS(curved open F): ‘round_thin’ (sc) (about a vase)
‘Vase with a thin bottom and neck and rounded body’

Tracing SASS can either describe the three-dimensional shape of the referent as in (b) above, or just its perimeter, as we can see in the following example.

SASS(G): ‘heart_shaped’ (about a pillow)
‘Heart-shaped pillow’

If we take into account their semantic function, SASS can be grouped into: SASS for shape, SASS for thickness, and SASS for size. Nevertheless, these features are often combined and conveyed simultaneously in just one sign, as we can see in the example below.

SASS(unspread curved open 5): ‘thick_rectangular’ (tl) (about a cuckoo clock)
‘Rectangular and thick cuckoo clock’

In the example above, the SASS conveys different information simultaneously, which are encoded in the different morphemes combined (for this reason they are polymorphemic signs): i) the handshape is selected considering that it is a rectangular and quite thick object, thus conveying shape and thickness of the cuckoo clock, ii) the distance between the fingertips and the thumb tip specifies thickness, whereas iii) the distance between hands and the movement downward define the size (if the object was bigger or smaller, movement and distance would be accordingly). However, these features often

overlap and the same parameter, for instance handshape, conveys different information at the same time.

SASS can be one- or two-handed signs, depending on the entity they are describing, and they can display morphological modifications to convey different degree of size and shape. Even though they are visually motivated and highly iconic, the handshapes selected to create SASS all belong to the phonological inventory of LIS. The fact that they are not created on the spot and that they are consistently used among signers support their linguistic rather than gestural nature.

It is important to notice that SASS could be confused with other classifiers denoting referents considering their shape. However, SASS display different syntactic functions. Compare the two examples below (in (a) the sign for the agent WOMAN is not illustrated).

a. MIRROR CL(L): 'pick_up_square_mirror'
'(The woman) picks up the square mirror.'

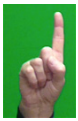
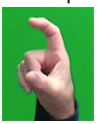
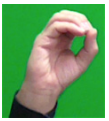
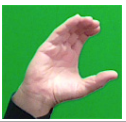
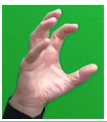
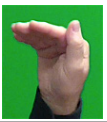
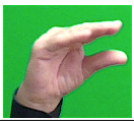
b. SASS(L): 'square' (about a table)
'Square table'

As we can see from the examples above, in both cases the handshape 'L' is selected because the objects in question are square. However, the two examples differ in the kind of root the classifier 'L' selects: in (a), it combines with a movement to convey the meaning '(to) pick up the square mirror', thus realising a predicate classifier. On the other hand, in (b) it encodes a descriptive root and describes the shape of the table, thus functioning as an adjective or a non-verbal predicate [SYNTAX 2.1.4]. Therefore, it is the syntactic context in which the sign

appears that helps disambiguating between SASS and other kinds of classifiers.

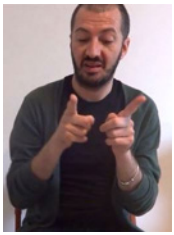
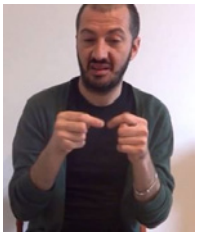
Despite some handshapes are present in other categories of classifiers, those selected for SASS constitute a specific subset. Here we provide a table of the handshapes involved followed by a list of examples. It is important to bear in mind that, being highly iconic elements employed to specify information of size and shape of referents, they constitute an open class. It follows that the list of handshapes could be enriched over time.

Table 4 List of handshapes that can appear in SASS in LIS

G	L	Curved open L	Curved closed 5	F
				
Curved open F	**Unspread curved open 5**	**Spread curved open 5**	**Unspread 5**	**Flat open 4**
				
Flat open 5				
				

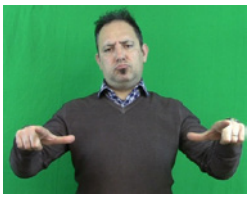
As introduced above, all the handshapes can appear in one- or two-handed signs, and all but flat open 4 can be associated to movement to specify shape. Indeed, flat open 4 could be considered the SASS defining size par excellence in that it is employed as a two-handed sign to convey the size of every kind of object. The only modification it can display consists in augmenting or reducing the distance between hands. We will come back to this later in this section. The G handshape is employed as a two-handed SASS to trace the perimeter of every kind of entity, both two-dimensional or three-dimensional, as in (a) below. Furthermore, it can be used to convey the shape of rectangular and thin two-dimensional objects, as in (b). Notice that in example (a) size is specified through the enlarged articulation of the SASS and the occurrence of the non-manual markers typical of augmentative features, namely teeth biting the lower lip (tl) (see [MORPHOLOGY 2.2.1] for details).

tl
a. CARPET SASS(G): ‘square_big’
‘Square and big carpet’

b. SASS(G): ‘rectangular’ (about a sticker)
‘Rectangular sticker’

The L handshape, as introduced above, is used in two-handed static SASS to convey the meaning ‘rectangular’ or ‘square’ referring to two-dimensional thin objects, such as mirrors, tables, frames, carpets, as in (a) below. Adding movement, it can be employed to trace the perimeter of an object like a pillow, as in (b) below. Again, the distance between hands and specific non-manual markers can further specify size. In (a), we see the non-manuals conveying the meaning ‘normal size’, i.e. lips protrusion (lp).



lp
a. SASS(L): ‘rectangular’ (about a carpet)
‘Rectangular not very big carpet’

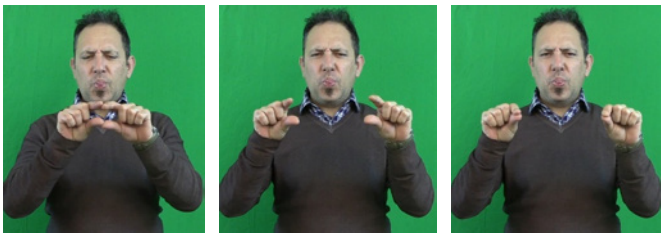
b. SASS(L): ‘rectangular’ (about a pillow)
‘Rectangular pillow’

Curved open L is selected to convey the meanings ‘round/oval’ of objects which are not thick, such as clock-faces, tables, hats, plates. In example (a), we see that it is employed to describe the round shape of the table, and it is marked by the typical non-manual markers for diminutive features [MORPHOLOGY 2.2.1], thus conveying the meaning ‘small round table’. This handshape can encode movement to define the shape of objects like vases, thus conveying the meanings ‘cylindrical/rounded and thin’. If marked by the non-manual markers for diminutive or augmentative, it also specifies features of size, as shown in (b) below.

sq
tp
a. SASS(curved open L): ‘round’ (about a table)
‘Round and small table’

tl
b. SASS(curved open L): ‘rounded’ (about a vase)
‘Rounded and big vase’

By augmenting the flexion of the base joint, curved open L can be used for rectangular and narrow two-dimensional objects, such as stickers or stripes (a). When occurring as a one-handed sign, it can function as a SASS for size: in (b), it defines the size of a small cup. The handshape can be more or less open to convey different sizes, vertically or horizontally oriented. Notice that, in both instances, the SASS is marked by the typical non-manual markers for diminutive [MORPHOLOGY 2.2.1].



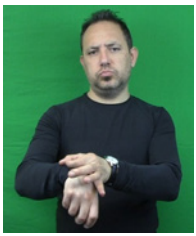
sq
tp
a. SASS(curved open L): ‘rectangular’ (about a sticker)
‘Small rectangular sticker’

sq
tp
b. SASS(curved open L): ‘small’ (about a cup)
‘Small cup’

Handshapes F, curved open F and curved closed 5 displaying movement are used to convey the shape of three-dimensional cylindrical, long, and thin objects like poles, stems of floor lamps, legs of tables or chairs, pipes. In the example below, thinness of the stem is conveyed by blowing out air.

blow
SASS(F): ‘cylindrical_thin_long’ (about a lamp-stem)
‘Long and thin lamp-stem’

Handshape F can also be employed without movement to describe the shape of small two-dimensional round objects like clock-faces of watches, buttons or coins.



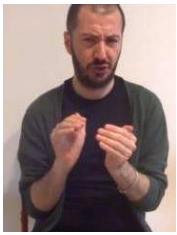
SASS(F): ‘round’ (about a clock-face)
‘Small round clock-face’

Unspread curved open 5 is employed for three-dimensional cylindrical/cone-shaped/round objects, bigger than those mentioned above (big cups, top hats, heavy vases, gutters). It can either display movement to trace the shape of the entity (a) or not (b). It can also be employed to define the size of objects with roundish shape, as in (c). As usual, specific non-manual markers can occur to convey diminutive or augmentative features.

a. SASS(unspread curved open 5): ‘cone_shaped’ (about a lamp-cover)
‘Cone-shaped lamp cover’

tl

b. SASS(unspread curved open 5): ‘round’ (about a cup)
‘Big round cup’



sq

c. SASS(unspread curved open 5): ‘little’ (about a shoe)
‘Little shoe’

Spread curved open 5 is used to describe three-dimensional entities which are round/spherical, big, and wide. It can encode movement to trace shape, as in the example below. The rounded shape is further conveyed through puffed cheeks (pc) simultaneously articulated with the manual sign.

pc

SASS(spread curved open 5): ‘rounded’ (about a lamp cover)
‘Rounded lamp cover’

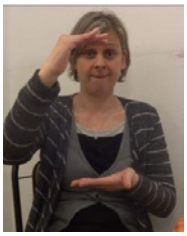
Unspread 5 (either with the thumb extended or not) is employed to describe the shape of rectangular/square and thick objects such as books (a), boxes, cuckoo clocks. When it functions as SASS for size, it is a two-handed sign articulated on the horizontal or vertical plane with the palms of the hands facing each other, and the fingertips oriented toward the same direction. Moreover, it displays a short movement toward the plane of articulation as to define the segment of space corresponding to the size of the entity (b). In both cases, it can be marked by the dedicated non-manual markers for augmentative or diminutive features.

fe
tl

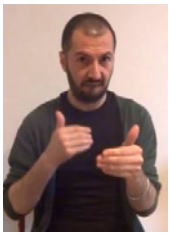
a. SASS(unspread 5): ‘rectangular’ (about a book)
‘Big rectangular book’

tl
b. SASS(unspread 5): ‘big’ (about a carpet)
‘Big carpet’

Flat open 4, as mentioned at the beginning of this section, can be considered the SASS for size par excellence. Indeed, it is used to specify the size of entities, both animate and inanimate, no matter what their shape is. It is a two-handed sign articulated on the vertical plane, as in (a), or on the horizontal plane, as in (b), depending on the entity considered. The palm of the non-dominant hand can either face the palm of the dominant hand or not, and it can be articulated as unspread 5 for ease of articulation. In both instances, the fingertips of the two hands are oriented towards opposite directions.



tl
a. SASS(flat open 4): ‘big’ (about a vase)
‘Big vase’



tl
b. SASS(flat open 4): ‘big’ (about a shoe)
‘Big shoe’

Size is encoded through the distance between the hands, together with the non-manual markers for diminutive or augmentative features. In the three examples below, we see three SASS referring to three vases of different size: big (a), normal (b), and little (c).

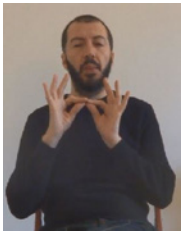
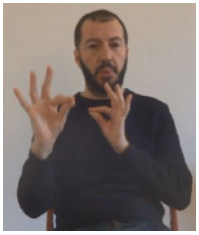
tl
a. SASS(flat open 4): ‘big’ (about a vase)
‘Big vase’

lp
b. SASS(flat open 4): ‘normal’ (about a vase)
‘Normal-size vase’

tp
c. SASS(flat open 4): ‘little’ (about a vase)
‘Little vase’

Some handshapes are employed as SASS defining thickness.

F can be employed with very thin objects. In the example below, it describes a very thin book. Notice that the signer blows out air to further specify that the object is thin and light.

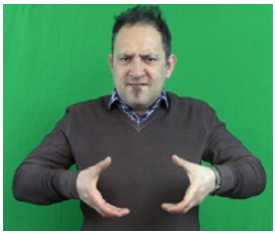
blow
SASS(F): ‘thin’ (about a book)
‘Thin book’

Flat open 5 is used for not very thick objects like books, tables, stool tops. In the example below, we see that it can incorporate tracing movement to describe the shape of the referent.

SASS(flat open 5): ‘thick_round’ (about a table)
‘Not thick and round table’

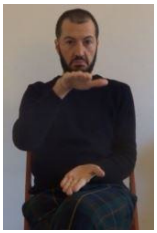
Unspread curved open 5 is used to define thickness of three-dimensional objects such as big books, bricks. By modifying the distance between the thumb and fingers tips, namely by changing the flexion of the base joints, it encodes different degrees of thickness. As we can see in the examples below, it can occur with the non-manual markers for augmentative features (a), or be articulated as a two-handed SASS (b) in order to specify the big size of the entity.

fe
tl
a. SASS(unspread curved open 5): ‘thick’ (about a book)
‘Very thick book’



fe
tl
b. SASS(unspread curved open 5): ‘thick’ (about a book)
‘Very thick book’

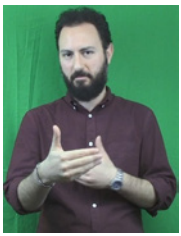
Unspread 5 is used as a SASS defining thickness for three-dimensional very big objects such as boxes, as illustrated below. The distance between the hands can be modified in order to convey different degrees of thickness.



SASS(unspread 5): ‘thick’ (about a box)
‘Very thick box’

This section has provided an overview of the most common SASS detected in LIS to describe the size and shape of entities. However, it is important to keep in mind that this list could be incomplete, for two main reasons: first, being visually motivated signs, the form and function of SASS can change considering the entity involved; second, their use is strictly connected to the perception of the signer, therefore there is variability in their occurrence. What is interesting, though, is that the configurations they select all belong to the phonological inventory of LIS, thus they are not invented or created on the spot. Moreover, despite being highly iconic, SASS do not necessarily convey the absolute size of the entity in a 1:1 scale, rather they depict it proportionally. Their linguistic nature is further confirmed by the fact that they can occur among other adjectives in attributive constructions, or function as predicative adjectives (see [SYNTAX 4.5] for further information).

The list of SASS is also meant to help in discriminating SASS from lexical signs. As we show in [LEXICON 1.3.1], many signs in LIS are derived from classifiers that have lost their function of classifiers and have become lexical signs. This lexicalisation process can also involve SASS, which can lose their adjectival function to become nouns, as in the examples provided below.



a. BOX

b. dom: tp STRIPE tl STRIPE tp STRIPE tl STRIPE tp STRIPE

n-dom: STRIPE

'Alternating thick and thin stripes'

Therefore, it is possible that also other SASS will undergo the same process and become lexical signs over time.

Information on Data and Consultants

The descriptions in this section are based on the references below. For information on data and consultants see the references. The video clips and images exemplifying the linguistic data have been produced by LIS native signers involved in the SIGN HUB Project.

Authorship Information

Elena Fornasiero

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Part V
Syntax

Syntax is the component of grammar responsible for the combination of simple items, be it words or signs, into phrases, clauses and sentences.

In this section, the reader will find a description of the different domains of syntactic structure and their internal organization in terms of order, agreement and other dependency phenomena.

We start introducing sentence types [SYNTAX 1], clause structure [SYNTAX 2], coordination and the different types of subordinated constructions [SYNTAX 3]. We close this part with a description of the internal structure of the noun phrase [SYNTAX 4] and adjectival phrase [SYNTAX 5].

1 Sentence types

Summary 1.1 Declaratives. – 1.2 Interrogatives. – 1.3 Imperatives. – 1.4 Exclamatives. – 1.5 Negatives.

A sentence is a unit in which words are grammatically linked to make a statement or to describe something (typically via a declarative sentence), to express a command (typically via an imperative sentence), to elicit information from an addressee (typically via an interrogative sentence), or to convey surprise (typically via an exclamative sentence). Sentences can be classified according to two main dimensions: their type (declaratives, imperatives, interrogatives, and exclamatives) and their internal complexity. A sentence is simple when it consists of a single independent clause ('Gianni arrived on time'), while it is complex when it consists of a main and a subordinate clause ('I think that Gianni arrived on time') or of two (or more) coordinate clauses ('Gianni arrived on time but Maria arrived late'). In principle, the number of subordinated clauses is unlimited ('Gianni said that I think that Maria claimed that Piero is convinced that you arrived on time') although in practice there are limitations of the sentence length due to cognitive limitations (for example, working memory).

The most prominent categorization of sentences is according to their function: declarative, interrogative, imperative, and exclamative.

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1.1 Declaratives

Declarative sentences are used to express statements, to make something known, to explain, or to describe. The typical declarative sentence contains at least a predicative nucleus consisting of a subject and of a predicate.

a. GIANNI SMART
'Gianni is smart.'

b. MARIA CHOCOLATE BUY
'Maria bought chocolate.'

In these sentences the property of being smart is predicated of Gianni, and the property of buying chocolate is predicated of Maria.

However, there can be elliptical sentences with a minimal structure. In the following question-answer pair, the single word utterance GIANNI can be considered a sentence as long as it is interpreted as the elliptical version of 'Gianni arrived late.'

wh
A: ARRIVE LATE WHO
B: GIANNI
'Who arrived late?' 'Gianni.'

Declaratives can be simple sentences as above or more complex constructions. For example, two declaratives can be coordinated.

MARIA CAT LIKE BUT DOG HATE
'Maria likes cats but hates dogs.'

A declarative sentence can be embedded under another declarative sentence [SYNTAX 3.3].

GIANNI THINK MARIA CHOCOLATE BUY
'Gianni thinks Maria bought chocolate.'

Declaratives can be affirmatives and negatives. An affirmative or positive sentence is used to express the validity or truth of a basic assertion while a negative sentence expresses its falsity. This quality of meaning is often referred to as negative and positive polarity. Negative sentences are illustrated below.

neg
a. MARIA CAT SEE NOT
'Maria does not see the cat.'

neg
b. WINE BUY NOBODY
'Nobody bought wine.'

Declaratives are the unmarked or most neutral type of sentence in comparison to the other three types. As such, they are the compass for examining various grammatical structures. Our description of interrogative, imperative and exclamative sentences will explain how they differ from declaratives.

1.2 Interrogatives

The term interrogative refers to a grammatical form that is specialized for the following main uses:
i) to ask whether a certain state of affairs holds:

y/n
A: GIANNI ARRIVE
B: YES
'Did Gianni arrive?' 'Yes.'

ii) to elicit information from the addressee:

wh
A: GIANNI BUY WHAT
B: WATER
'What did Gianni buy?' 'Water.'

iii) to report a doubt:

wh
a. IX$_1$ THINK PALM_UP GIANNI IX BUY Q$_{\text{artichoke}}$ PALM_UP
'I wonder what Gianni bought.'

y/n
b. IX$_1$ THINK IX GIANNI WINE BUY DONE
'I wonder whether Gianni bought wine.'

It is possible to distinguish between: i) polar interrogatives (sometimes called yes/no interrogatives because they ask whether a certain state of affairs holds or not, so they are naturally answered by 'yes' or 'no'), ii) alternative interrogatives, which present two or more options for the reply, and iii) content interrogatives, which elicit a more elaborate answer than 'yes' or 'no' because they are used to ask the addressee to fill in some specific missing information.

1.2.1 Polar interrogatives

An example of direct polar interrogative in LIS is provided below.

y/n
SICK IX$_2$
'Are you sick?'
An example of indirect polar interrogative is shown below.

y/n
IX$_1$ THINK GIANNI SICK
'I wonder whether Gianni is sick.'

Polar interrogatives may differ from declaratives only for the presence of certain non-manual markers. For example, the two sentences below are distinguished only non-manually: the yes/no non-manual marking (raised eyebrows) is absent in the declarative (a) and present in the polar interrogative (b).

a. IX$_3$ CINEMA GO
'He will go the cinema.'

y/n
b. IX$_3$ CINEMA GO
'Will he go to the cinema?'

However, polar interrogatives may be distinguished from declaratives also by the presence of the sign YES^NO in sentence final position.

y/n
IX$_2$ PIZZA WANT YES^NO

'Do you want pizza?'

In polar interrogatives, the subject pronoun naturally occurs at the end of the sentence.

y/n
PIZZA WANT IX$_2$

'Do you want pizza?'

The subject pronoun can be doubled, namely it can occur both at the beginning and at the end of the sentence. This happens in the following question, in which a modification of non-manual marking denotes surprise for the fact that the interlocutor is eating pizza (but doubling does not seem to be restricted to these cases).

y/n
IX$_2$ PIZZA WANT IX$_2$

'Do you want pizza?'

1.2.1.1 Non-manual markers in polar interrogatives

Polar interrogatives occur with specialised non-manual markers, which include facial expressions such as eye contact with the addressee and raised eyebrows. A change in head and body orientation, head nod, and head shake can also occur. These non-manual markers occur over the entire clause with the exception of polar interrogatives containing YES^NO, where non-manual markers occur only on this sign.

1.2.1.2 Word order changes between declaratives and polar interrogatives

Although word order in polar interrogatives has not been systematically investigated, polar interrogatives are not distinguished from declaratives by means of word order change but mainly by non-manual marking.

1.2.1.3 Interrogative particles

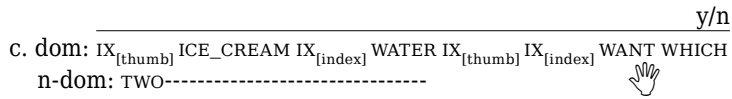
An interrogative particle is a sign whose unique function is to indicate that an utterance is an interrogative. Clear cases of interrogative particles in polar interrogatives have not been reported for LIS, although the sign YES_NO optionally occurring in sentence final position is a possible candidate, whose status deserves further examination.

1.2.2 Alternative interrogatives

Alternative interrogatives present two or more options for the reply. The following are different realisations of alternative interrogatives.

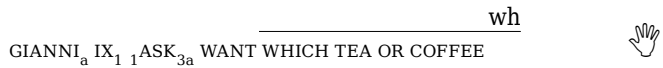
'Do you prefer coffee or tea?'

'Do you prefer coffee or tea?'



'Do you prefer ice cream or water?'

An example of indirect alternative interrogative is provided below.



'I asked Gianni whether he prefers coffee or tea.'

1.2.3 Content interrogatives

Content interrogatives are used to ask the addressee to fill in some specific missing information. In LIS, as in many languages, they contain a specialized set of interrogative words or phrases. Since in English most of these interrogatives contain the morpheme *wh-*, content interrogatives are sometimes called *wh*-interrogatives.

An example of direct content interrogative in LIS is provided below.

wh
A: IX$_2$ BUY WHAT
B: ICE_CREAM

'What did you buy?' 'Ice cream.'

Below, we show an example of indirect content interrogative.

wh
IX$_3$ $_3$ASK$_1$ BUY IX$_1$ WHAT IX$_1$

'He asked me what I bought.'

1.2.3.1 Non-manual markers in content interrogatives

The main non-manual marker used in content interrogatives is furrowed eyebrow. Interrogative signs always occur with this non-manual marker (a), but it can extend over a bigger portion of the interrogative sentence (b).

a. wh
A: IX$_2$ WORK WHERE
B: IX(loc)$_{[proximal]}$

'Where do you work?' 'Here.'

b. wh
A: IX$_2$ WORK WHERE
B: IX(loc)$_{[proximal]}$

'Where do you work?' 'Here.'

1.2.3.2 List of wh-signs

LIS contains a full paradigm of interrogative signs. Below, we provide a non-exhaustive list of *wh*-signs.

a. wh
WHAT

b. wh
WHICH

c. wh
WHO

d. wh
WHY

e. wh
WHEN(1)

f. wh
WHEN(2)

g. wh
WHERE

h. wh
HOW(1)

i. wh
HOW(2)

j. wh
HOW_MANY

Another sign commonly found in LIS interrogatives is the one glossed $^{Q}_{\text{artichoke}}$.

$Q_{artichoke}$

The meaning of $Q_{artichoke}$ can be recovered by looking at its role in the sentence. For example, $Q_{artichoke}$ corresponds to the animate subject in the following sentence, so it is naturally translated by 'who'.

wh
A: ARRIVE $Q_{artichoke}$
B: GIANNI
'Who arrived?' 'Gianni.'

$Q_{artichoke}$ corresponds to the inanimate subject in the following sentence, so it is naturally translated by 'what'.

wh
A: HAPPEN $Q_{artichoke}$
B: GIANNI CL(V): 'fall'
'What happened?' 'Gianni fell down.'

$Q_{artichoke}$ can play other grammatical roles, as in the following sentence.

wh
CAR $POSS_2$ BREAK $Q_{artichoke}$
'Where did your car break?'

Another way to single out the specific meaning of $Q_{artichoke}$ is to look at the mouthing it is associated to. $Q_{artichoke}$ may be co-articulated with some vowels or consonants present in the corresponding Italian *wh*-word. For example, in the following sentence the mouthing reproducing the consonant [p] present in the corresponding Italian *wh*- phrase *perché* ('why') is produced simultaneously with $Q_{artichoke}$.

wh
[p]
IX$_2$ LEAVE Q$_{\text{artichoke}}$

'Why are you leaving?'

In the following sentence, the mouthing producing the sound [ku] present in the corresponding Italian *wh*-phrase *quando* ('when') is produced simultaneously with Q$_{\text{artichoke}}$.

wh
[ku]
IX$_2$ LEAVE Q$_{\text{artichoke}}$

'When are you leaving?'

1.2.3.3 Content interrogatives without *wh*-signs

Content interrogatives without *wh*-signs are possible in LIS. In the following sentence, the utterance is marked as interrogative by the presence of interrogative non-manual marking

wh
A: TIME
B: AT_SEVEN

'What time is it?' 'Seven o'clock.'

Wh-signs are usually left out when the specific interrogative meaning can be recovered from the context.

1.2.3.4 Non-interrogative uses of *wh*-signs

Wh-signs can be used in non-interrogative contexts when they introduce temporal clauses [SYNTAX 3.5.2] locative clauses [SYNTAX 3.5.3], manner clauses [SYNTAX 3.5.4], and reason clauses [SYNTAX 3.5.5].

Notice the sign glossed as WHY is identical in its manual parameters to the sign glossed as REASON, which typically introduces reason clauses. However, the two signs differ in terms of absence/presence of specific non-manuals [SYNTAX 3.5.5].

1.2.3.5 Position of *wh*-signs

The *wh*-phrase (possibly formed only by the *wh*-sign) plays a grammatical function in the interrogative sentence, e.g. subject, direct object, indirect object, or adverbial modifier. No matter what grammatical function the *wh*-phrase plays, the dedicated position for *wh*-phrases is sentence-final. Therefore, even if the neutral order in a declarative sentence is Locative - Subject - Object - Verb as in (a), this order changes if a *wh*-sign is present, since the latter moves in sentence final position, no matter if it is the subject as in (b), the direct object as in (c), or the locative as in (d). In all these sentences, the verb is followed by an aspectual marker, DONE, which indicates that the event is concluded [LEXICON 3.3.2]; [MORPHOLOGY 3.3.2.3].

a. MILAN GIANNI HOUSE BUY DONE
'Gianni bought a house in Milan.'

b. A: MILAN HOUSE BUY DONE WHO (wh)
B: GIANNI
'Who bought a house in Milan?' 'Gianni.'

c. A: MILAN GIANNI BUY DONE WHAT (wh)
B: HOUSE
'What did Gianni buy in Milan?' 'A house.'

d. A: GIANNI HOUSE BUY DONE WHERE (wh)
B: MILAN
'Where did Gianni buy a house?' 'In Milan.'

Also, in *wh*-interrogatives it is possible to repeat the subject pronoun. When this happens, the subject pronoun follows the *wh*-sign, so the latter is not strictu sensu sentence final.

IX$_2$ LIVE WHERE IX$_2$ (wh)
'Where do you live?'

The dedicated position for the *wh*-phrase is sentence-final in embedded interrogatives as well.

wh
IX$_1$ WANT KNOW HOUSE BUY WHO
'I want to know who bought the house.'

1.2.3.6 Split between the *wh*-sign and its restriction

A *wh*-sign and its restriction (namely, the noun or the noun phrase that the *wh*-sign modifies) may split. When splitting takes place, the *wh*-sign sits in sentence-final position while its restriction stays in the position which corresponds to its grammatical function (the subject position in the following sentence).

wh
CHILD BOOK THREE STEAL WHICH
'Which child stole three books?'
(adapted from Cecchetto et al. 2009, 285)

1.2.3.7 Doubling of the *wh*-sign

In LIS, it is possible to find cases where a content interrogative contains two copies of the same *wh*-sign, as in the following example. The non-manual component can either occur with the *wh*-signs only, or optionally spread over the whole clause.

wh wh
WHAT YESTERDAY BUY WHAT
'What did you buy yesterday?'

When doubling takes place, one *wh*-sign sits in sentence-initial position while the other one sits in the canonical sentence-final position. Sentences with doubling can be naturally used in certain contexts only if the question presupposes that there is someone or something that is the answer to this question. For example, the sentence above is natural if the signer is playing the role of a police officer who has arrested a suspect. During the interrogation, the suspect admits to have stolen something. In that context, the police officer can happily utter that sentence because it is given for granted that there is some object that has been stolen.

Another attested case of doubling takes place when $\text{Q}_{\text{artichoke}}$ combines with another *wh*-sign. This happens in certain colloquial registers. As the following examples show, the *wh*-sign and the $\text{Q}_{\text{artichoke}}$ preferably occur in sentence-final position with the order '*wh*-sign – $\text{Q}_{\text{artichoke}}$'.

wh
a. ARRIVE WHO $Q_{artichoke}$
'Who arrives/has arrived?'

wh
b. IX_2 DO WHAT $Q_{artichoke}$
'What are you doing/did you do?'

1.2.3.8 Multiple *wh*-signs in interrogatives

There are languages in which more *wh*-signs occur in a single interrogative when the addressee is asked to provide multiple pieces of information. One example from English is 'Where did you buy what?' whose answer would be a statement such as 'I bought the vegetables at the grocery store and the meat at the butcher.' The presence of this type of interrogatives has not been reported for LIS.

1.2.3.9 Interrogative particles

An interrogative particle is a sign whose *unique* function is to indicate that an utterance is an interrogative. As *wh*-signs in LIS have a specific meaning (What? When? Where? etc.), they do not qualify as interrogative particles. An exception might be $Q_{artichoke}$. As its meaning is underspecified in absence of a disambiguating mouthing, it might be analysed as an interrogative particle, especially if mouthing is analysed as external to the core meaning of this sign.

1.3 Imperatives

An imperative is a grammatical form that is specialized to elicit a behaviour from the addressee, so imperatives and commands are often taken to be synonymous. However, this identification is not fully correct, because sometimes non-imperative sentences can be used to express a command and, conversely, an imperative can be used for functions other than commands. Still, LIS has grammaticalised forms that are *typically* associated with commands and these forms are the topic of the present section.

1.3.1 Subtypes of imperatives

As previously mentioned, the imperative is not used only for commands. In LIS, the same form that is used to give orders is also used for other functions, which may not be obviously related. Typical uses of imperatives include at least: i) invitations, ii) suggestions/advice, iii) permission, iv) instructions, and v) recommendations.

The following sections will describe the different uses of imperatives in LIS.

1.3.1.1 Orders

The most obvious subtype of imperatives includes positive and negative orders. Orders express the will of the speaker for someone to do or not do something. An example of a sentence expressing an order in LIS is offered below.

fe
EAT PALM_UP
'Eat!'

In this sentence, the verb EAT is immediately followed by a specific sign, glossed PALM_UP, illustrated in the following image.

PALM_UP

PALM_UP, which can be considered as a manual marker of the imperative, is optionally present in LIS positive imperative sentences and is produced with the palm facing upwards. It spatially agrees with the locus associated with the person the command is given to. When used to convey a command, PALM_UP is produced with a short straight tensed movement.

When the addressee is plural, PALM_UP is produced with an arc-movement. The following videos illustrate the contrast between the singular (a) and plural form (b) of PALM_UP.

re
a. EAT PALM_UP$_{sg}$
'You guy eat!'

re
b. EAT PALM_UP$_{pl}$
'You guys eat!'

A different sign (glossed MOVIMP) surfaces in LIS imperative sentences when the addressee must move to a different position to obey the command.

The MOVIMP sign, which is illustrated in the following picture, displays an arc movement towards a locus associated to the signer's left or right area in signing space (but for some signers MOVIMP displays an unspread 5 handshape if the addressee is plural).

MOVIMP

The following is an imperative sentence with MOVIMP.

fe
SLEEP MOVIMP
'Go to sleep!'

As suggested by the translation, the addressee must move to a different position in order to obey the command.

MOVIMP occupies a postverbal position, just like PALM_UP. However, MOVIMP and PALM_UP can never co-occur in the same sentence. This suggests they realize the same function in LIS imperative sentences, although MOVIMP is more specialized, since it implies that the addressee must make a movement to obey the command.

The manual signs glossed as MOVIMP and PALM_UP are not the only elements marking the imperative in LIS. A crucial syntactic component of LIS imperative sentences is the presence of specific non-manuals, although what non-manual is produced in imperatives is subject to individual variation. In fact, non-manual marking is sufficient to indicate a command in absence of imperative manual signs, as in the following sentence, where the relevant non-manual marking is furrowed eyebrows (fe).

fe
KNEEL_DOWN
'Kneel down!'

1.3.1.2 Invitations

Imperatives may also take the form of an invitation when someone is warmly encouraged to do something. As opposed to orders, invitations are expressions of politeness. An example of a LIS sentence expressing an invitation is provided below.

sq
fe
$_{3}$TAKE$_{2}$ PALM_UP
'Take it!'

In this sentence, the signer is inviting his guest to have a piece of cake. When used to express an invitation, PALM_UP displays a longer arched relaxed movement. As for non-manual markers, invitations are accompanied by furrowed brows (fe) and squint eyes (sq), plus a head nod.

1.3.1.3 Suggestions/advice

Suggestions and advice also fall into the wider category of imperatives whose main goal is to advise the addressee on what is best for him/her to do in order to get a better result or to improve his/her situation. A suggestion/advice is illustrated below. In the video, the signer is inviting the addressee to buy powder milk. The video contains an imperative sentence ('buy the powder milk') followed by a declarative sentence ('it is convenient').

hn
fe
MILK IX POWDER BUY PALM_UP. CONVENIENT
'Buy the powder milk! It is convenient.'

In this sentence, PALM_UP agrees with the object. As for non-manual markers, suggestions are produced with furrowed brows (fe), plus a head nod.

1.3.1.4 Permissions

This subvariety of imperatives expresses an authorization, and may be a reply to a request, as in 'May I take your pen?'. 'Yes, take it!'. An example of a LIS sentence expressing permission is provided below.

lp
fe
PEN $_3$TAKE$_2$ PALM_UP
'Take the pen!'

Also in this sentence, PALM_UP agrees with the object and the addressee. As for non-manual markers, permissions are marked by furrowed brows (fe) and protruding lips (lp).

1.3.1.5 Instructions

Another subtype of imperative sentences is produced when the speaker gives instructions guiding his/her interlocutor on how to carry out a specific action such as building, cooking, reaching a destination, or any other performance. This is illustrated by the sentence below.

lp fe
BOX TAPE CL(closed G): 'cut_tape' CL(flat open 4): 'open_box'
'Cut the box's tape and open it.'

In this sentence, imperative is indicated only by the non-manual marker furrowed brows (fe).

1.3.1.6 Recommendations

The imperative form may also be employed to express a recommendation to do or not to do something, for example if the speaker has a concern that a future event can damage the interlocutor, as in the following sentence.

fe
CL(closed 5): 'drive_motorbike_fast' NOT CL(closed 5): 'drive_motorbike'

fe
CL(G): 'speed_raise' JUDGEMENT
'Don't go fast with your motorbike, drive at the right speed!'

In this sentence as well, the only marker of imperative is the non-manual marking, namely furrowed eyebrows (fe).

1.3.2 Imperative markers

In this section, we summarise what we already said about manual markers in the different types of imperatives.

1.3.2.1 Manual signs

As shown in the examples provided in the previous section, and as confirmed by the use of PALM_UP in the Imperative-and-Declarative (IaD) construction described in [SYNTAX 1.3.9], PALM_UP can occur with many different uses of the imperative. In this sense, it is not a pragmatic marker of command, but a grammatical marker of the imperative verb.

MOVIMP seems to have a more restricted distribution because it is used only when the addressee must move to a different position to obey a given command. Neither MOVIMP nor PALM_UP are obligatory in interrogative sentences, as non-manuals are sufficient to signal the interrogative force. For example, the following video contains two imperative sentences. The first one ('wake up!') contains no manual marker of imperative force while the second one ('go to eat!') contains MOVIMP.

fe
IX$_2$ WAKE_UP. EAT MOVIMP

'Wake up! Go to eat!'

1.3.2.2 Non-manual markers

We indicated specific non-manual markers for the various types of imperatives in [SYNTAX 1.3.1]. The spreading domain of non-manual markers refers to their extension over the manual signs they co-occur with. The non-manual markers for the imperative are not limited to the signs PALM_UP or MOVIMP (when it is present), but extend over the verb and its arguments. Although non-manual markers are subject to individual variations (possibly being influenced by emotive facial expressions that commonly occur with imperative sentences), a marked facial expression is always found in the imperative.

1.3.3 Imperatives and verb classes

To be developed.

1.3.4 Word order in imperatives

The main fact to be noticed about word order in imperatives is the position of PALM_UP or MOVIMP, which must immediately follow the verb. The non-marked SOV word order [SYNTAX 2.3] is preserved in LIS imperative sentences.

1.3.5 Attention callers

Since imperatives are means for eliciting a specific behaviour from the addressee, imperative clauses are frequently preceded or accompanied by the attention getters, as the one below.

Figure 1 An attention-caller sign The use of this sign is not limited to imperative constructions. Indeed, it is used anytime a signer needs to call for attention (e.g. before making an important announcement to a group of signers)

1.3.6 Negation in imperatives

When a negative order is expressed in LIS, there are some interesting differences with respect to positive imperatives. Both declarative and imperative clauses employ a manual sign for negation displaying the same handshape but differing in its movement realization. In negated declaratives, the manual sign (glossed NOT) produced with an extended index finger displays a short right-to-left repeated movement, as in (a), while in negative imperatives the manual sign (glossed NO) is produced with a single tensed and wide movement, as in (b).

fe hs
a. IX_3 EAT NOT
'He doesn't eat.'

fe hs
b. EAT NO
'Don't eat!'

1.3.6.1 Manual negation

Manual signs conveying the imperative, such as PALM_UP sign or the MOVIMP sign are incompatible with negation. The imperative force is thus deduced from the marked form of manual and non-manual negation.

1.3.6.2 Non-manual negation

Marked facial expression are obligatory in negative imperatives.

1.3.7 Subjects in imperatives

The section is dedicated to the subject in the imperative sentence.

1.3.7.1 Null and/or overt subjects

Null subjects seem to be the preferred option in LIS imperative sentences.

WAKE_UP HURRY_UP EAT MOVIMP
'Come on, wake up! Go eat!'

1.3.7.2 The person of the subject

Overt subjects can occur but, as opposed to declaratives, LIS imperative sentences only allow the overt production of second person subjects or of subjects including the addressee.

IX_2 WAKE_UP. EAT MOVIMP
'Wake up! Go to eat!'

1.3.7.3 Anaphoric properties

To be developed.

1.3.8 Embedding imperatives

The examples of imperatives described up to now are cases where the imperative sentence is a root clause. No case of embedded imperative has been described yet. However, this is an area which is under-investigated.

1.3.9 Special constructions: Imperative-and-Declarative (IaD)

Imperative-and-Declarative (IaD) is a very peculiar construction where an imperative is used in conjunction with a declarative clause, but this does not imply any order or even permission. This construction is illustrated by a sentence like 'Go on like this and you will fail'. In this example, the imperative does not convey any order or suggestion but, rather, is very similar to a conditional clause ('If you go on like this, you will fail.'). Since this use of the imperative is systematic across languages, the Imperative-and-Declarative construction has even been claimed to be a proper test for imperatives. LIS has the Imperative-and-Declarative construction, as shown in the example below which contains the imperative sign PALM_UP.

hn
LAUGH PALM_UP IX_1 FAIL
'Keep laughing and I'll fail you!'

The sentence-initial clause of the sentence above is marked by specific non-manual marking roughly composed of repeated head nodding (hn), raised brows (re), and optionally tensed eyes ('te'). The non-manuals marking in this sentence, together with the sign PALM_UP, are responsible for the peculiar interpretation of the sentence, which is minimally different in meaning from the conditional sentence below, which, however, lacks the sign PALM_UP and is marked by the typical non-manuals of conditional clauses in LIS [SYNTAX 3.5.1].

hn
re
LAUGH IX_1 FAIL
'If you laugh, I'll fail you.'

1.3.10 Exhortative constructions

To be developed.

1.4 Exclamatives

Exclamatives are grammatical forms that convey the information that something is surprising or noteworthy in some way: in an exclamative, all the content expressed by the sentence or part of it is unexpected. If the surprising information concerns the whole sentence,

we have a total exclamative, if the unexpected content is limited to a constituent of the sentence, we have a partial exclamative. An example of total exclamative in Italian is the following: *Oggi fa molto freddo!* ('Today it's very cold!'). In languages like Italian, the constituent that expresses the surprising information is introduced by a *wh*-element, as in the following partial exclamative: *Che bel vestito che hai comprato!* ('What a nice dress you bought!').

In LIS, we have found a distinction between total and partial exclamatives, based on the two different kinds of non-manual markers used when the two types of sentences are articulated: (a), an example of a total exclamative, is produced with raised eyebrows (re); (b), an example of a partial exclamative, is produced with furrowed eyebrows (fe). No specific manual sign introduces the two types of sentences.

re
a. CAKE PE IX$_1$ ADORE
'I'm crazy about that cake!'

fe
b. RAIN
'How much it rains!'

1.4.1 Total exclamatives

Total exclamatives, in LIS, are characterized by the presence of specific non-manual markers, namely raised eyebrows. These are the same non-manual markers that identify yes/no questions and, as in the case of questions, they spread over the whole exclamative sentence.

1.4.1.1 Non-manual marking

As illustrated above, the non-manual markers that characterize total exclamatives are similar to yes/no questions (re).

re
GIANNI ARRIVE
'Gianni has arrived!'

1.4.1.2 Manual signs

No specific manual sign accompanies total exclamatives.

1.4.2 Partial exclamatives

In many spoken languages, partial exclamatives exhibit a *wh*-element occupying the same position it occupies in *wh*-interrogative sentences.

In LIS, a manual *wh*-morpheme has not been identified, as the different *wh*-signs do not share a common value for any formational parameter. What identifies *wh*-signs as a natural class is their grammatical function, their distribution in the clause and a specific non-manual marker, that is, furrowed eyebrows. Partial exclamative sentences in LIS are produced with furrowed eyebrows, as shown in the examples below.

fe
MESS EMPHATIC_GESTURE

'What a mess!'

For further details on *wh*-questions see [SYNTAX 1.1.2].

1.4.2.1 Non-manual marking

Partial exclamative sentences in LIS are produced with furrowed eyebrows spreading over the whole sentence.

1.4.2.2 Wh-signs

In LIS we cannot find *wh*-elements that characterize exclamative sentences, but there is an analogy with the *wh*-questions, due to the presence of the *wh*-non-manual markers also present in *wh*-questions, consisting in furrowed eyebrows.

1.4.2.3 Other structures

LIS exclamatives are often produced with the articulation of the sign VERY, illustrated in the picture below.

VERY

The following is an example of an exclamative sentence produced with the sign VERY.

re
PALM_UP SURPRISE VERY BEAUTIFUL EXACTLY
'It is really a beautiful surprise!'

The sign VERY is not a marker exclusively used in exclamative sentences, though. Its status as a sign or as a gesture belonging to the Italian culture is still controversial. Our informants often use it in exclamative sentences but its position is not fixed, as shown by the examples below.

a. fe
COLD VERY
'How cold!'

b. fe
VERY BACK IX$_1$ PAIN VERY
'What a bad backache!'

1.4.3 Negation in exclamatives

Differently from some spoken languages, including Italian, where it is possible to use a negative word in an exclamative sentence without negating the truth value of the sentence itself, in LIS exclamatives, this use of negation has not been identified.

1.5 Negatives

Every natural language has a way to express negation by using a multitude of markers, such as particles, negative words and affixes. There is an extensive variety in the number and in the use of negative markers, in their syntactic status and in their position in the clause. Moreover, negation varies in the way it interacts with different types of sentences.

We can make a distinction on the basis of scope, that is the actual parts of the sentence which are affected by negation. So, we can distinguish between sentential/clausal negation and constituent/local negation. We have a sentential/clausal negation when the negative marker takes scope over the whole clause (as in 'John didn't finish his paper'), whereas we have a constituent/local negation when the scope is confined to a particular constituent of the clause (as in 'John finished his paper not long ago'). Sentential negation in LIS uses manual markers and non-manual markers.

1.5.1 Manual marking of negation

In LIS, negative particles, *n*-words and irregular negatives are used to express negation [MORPHOLOGY 3.5]. An example of negative particles is shown below.

DANIELE EAT NOT
'Daniele does not eat.'

Below we can find an example of a *n*-word.

DANIELE EAT NOTHING
'Daniele does not eat anything.'

Finally, we report an example of an irregular negative.

DANIELE SPORT LIKE.NOT
'Daniele does not like sports.'

1.5.1.1 Manual negative elements

This section describes the manual negative elements LIS uses. A description of the regular and irregular markers of negation can also be found in [MORPHOLOGY 3.5.1.1].

1.5.1.1.1 Negative particles

LIS has several signs to express negation manually. The most common one is a sign glossed NOT and produced with the extended index finger (G handshape), the palm facing outward and a slight side-to-side movement of the hand. It appears as in the video below.

NOT

Another way to express negation is the sign NOT_YET. It has two different variants that are shown below as NOT_YET(1) (a) and NOT_YET(2) (b). The variant NOT_YET(1) is a symmetrical sign formed by the two hands with the same configuration (F configuration): the movement is similar to the one in NOT, rapid and left to right. On the other hand, the variant NOT_YET(2), which is mainly used in northern Italy, is articulated as an unspread 5 handshape moving from side to side close to the mouth.

a. NOT_YET(1)
'not yet'

b. NOT_YET(2)
'not yet'

The two variants do not differ semantically and their position in the sentence is the same. So, when we use the gloss NOT_YET, we refer to both the variants without specification.

From a semantic point of view, NOT_YET differ significantly from NOT. Indeed, the sign NOT_YET is a presuppositional negative marker: it is used when there is an expectation that the action that is negated should take place in the future (the meaning is similar to the English negative marker 'not yet'). Both NOT (a) and NOT_YET (b) can be used as answer to yes/no questions, as in the examples below.

y/n
a. A: GIANNI PHONE_CALL DONE
B: GIANNI PHONE_CALL NOT
'Did Gianni call?' 'Gianni has not called.'
(adapted from Geraci 2006a, 3)

y/n

b. A: GIANNI PHONE_CALL DONE
B: GIANNI PHONE_CALL NOT_YET
'Gianni has not called.' 'Gianni has not called yet.'
(adapted from Geraci 2006a, 4)

As for their distribution, both NOT (a) and NOT_YET (b) occupy the post-verbal position as shown in the two following examples.

a. GIANNI ARRIVE NOT
'Gianni has not arrived.'
(Geraci 2006a, 4)

b. GIANNI ARRIVE NOT_YET
'Gianni has not arrived yet.'
(Geraci 2006a, 4)

They also appear after the modal verbs, as in the example below.

GIANNI GO_OUT MUST NOT
'Gianni must not exit.'

Only one negative marker at a time can appear in a sentence.

Other two options used to express negation are the signs that we gloss NEG_O and NEG_S, for the oral articulations that accompany their manual realization. The sign NEG_O is a symmetrical sign formed by the two hands with F handshape. The two hands perform one rapid and strong movement, from the centre to the outside, as in the video below.

NEG_O
'Not anymore'

This negation has a more radical and incisive meaning than the sign NOT: it refers to something that should have happened but did not, as in the example below.

neg

WEEK.LAST IX_1 MUST COME IX_1 NEG_O REASON SICK IX_1
'Last week I should have come, but I did not because I was sick.'

The other negation, glossed as NEG_S, has the same configuration of the sign NEG_O, but the movement is less tense and slower and it differs in the oral articulation, as can be seen from the following video.

neg
NEG_S

'Not at all'

This sign refers to an action that a person could not do at all, like in the example below.

neg
IX_1 CHILD LOOK_AFTER IX_1 WORK NEG_S

'I looked after the child, so I did not work at all.'

There is one more negation carrying the meaning of a prohibition. It is produced by articulating the two fingerspelled letters N and O corresponding to the oral articulation of the Italian word *no*. The sign N-O can be seen below.

N-O

Below we can see an example of its use.

IX_1 REPEAT++. IX_1 SAY N-O ANYMORE

'I repeated it many times. I said no, enough!'

1.5.1.1.2 Irregular negatives

Irregular negatives are a small group of predicates that incorporate negation in an opaque way. They have no obvious morphological relation to their positive counterpart and no distinct negative element can be identified [MORPHOLOGY 3.5.2]. In this case, we talk about *negative supplition*.

Examples of irregular negatives in LIS are LIKE.NOT (a) and WANT.NOT (b).

neg
a. LIKE.NOT

'(To) dislike'

neg
b. WANT.NOT

'(To) not want'

It should be noticed that the irregular negative WANT.NOT is a variant of the regular negative form WANT^NOT.

WANT^NOT

'Do not want'

We show below the use of LIKE.NOT (a), WANT.NOT (b), and in context.

a. MUSIC RAP IX_1 LIKE.NOT (neg)

'I don't like rap music.'

b. $PERSON_3$ IX_1 $_1COMMUNICATE_3$ IX_1 WANT.NOT (neg)

'I don't want to communicate with that person.'

Other irregular verbs express impossibility. One is the sign that can be glossed as IMPOSSIBLE_PA_PA, for the oral articulation that takes place when the sign is performed.

IMPOSSIBLE_PA_PA (neg)

'(To) not be able to'

It refers to a situation when, after several attempts, the desired result cannot be achieved, like in the example below.

OUTSIDE WIND STRONG IX_1 CIGARETTE LIGHT_ CIGARETTE ++
IMPOSSIBLE_PA_PA (neg)

'Outside there was a strong wind, so I tried in vain to light a cigarette.'

Another sign has a similar meaning but even stronger and it can be glossed as IMPOSSIBLE_NO_WAY.

IMPOSSIBLE_NO_WAY (neg)

'(To) be absolutely unlikely to happen'

It indicates that there is no possibility at all to carry out an action or that a situation has no way out, as it can be seen in the example below.

neg
TODAY WORK CL(5): 'finish_work' LIMIT TODAY IX$_1$ IMPOSSIBLE_NO_WAY

'There is no chance that I will finish my work by today.'

There is one more irregular negative predicate, that is the negative counterpart of the verb EXIST, expressing existence and possession. The verb EXIST.NOT can be seen below.

neg
EXIST.NOT

'(To) not have'
'There is not'

It is used to indicate the non-existence or the non-possession of something, like in the example below.

DAVIDE DOG EXIST.NOT
'Davide does not have a dog.'

It is important to note that regular negative predicates such as KNOW^NOT and CAN^NOT differ from the irregular forms presented in this section, in that they show a morphological relation to their positive counterpart (i.e. KNOW and CAN): in these cases, a negative morpheme is added to the lexical base of the verb [MORPHOLOGY 3.5.1].

1.5.1.1.3 Negative determiners and adverbials

In LIS, it is possible to express negation also with *n*-words, also called negative quantifiers. There are two *n*-words: NOBODY and NOTHING: their meaning is very similar to the one of the two corresponding English words. NOBODY is a two-handed sign, with the same handshape and orientation of the sign NOT, but it is performed with a single movement from the centre of the neutral space to the outside.

neg
NOBODY

NOTHING is very similar to the sign NOT_YET; it has the same configuration and orientation, but a different movement: small circles are created with the two hands.

neg
NOTHING

Examples of sentences containing the signs NOBODY (a) and NOTHING (b) are shown below.

neg
a. CONTRACT$_a$ PUT_SIGNATURE$_a$ IX$_a$ NOBODY
'Nobody signed the contract.' (adapted from Geraci 2006a, 5)

neg
b. GIANNI PUT_SIGNATURE NOTHING
'Gianni signed nothing.' (adapted from Geraci 2006a, 5)

The presence of a *n*-word is sufficient to provide the sentence with a negative meaning.

Even if they are arguments of the verb (they can be the sentence subject or object), negative quantifiers do not occur in the canonical position devoted to verbal arguments. Their canonical position is postverbal (like negative particles). For example, the *n*-word NOBODY is the subject in the sentence CONTRACT PUT_SIGNATURE IX NOBODY reported above, but it does not appear in the canonical position of subjects (preverbal). The same holds for the sign NOTHING. In the sentence GIANNI PUT_SIGNATURE NOTHING reported above, a direct object naturally appears before the verb, but, being an *n*-word, the sign NOTHING must follow the verb.

The only case in which it is possible to find a *n*-word in a preverbal position is when the negative non-manual markers distribute to the right, also covering the other elements of the sentence, as in the following example.

hs
NOBODY CONTRACT PUT_SIGNATURE
'Nobody signed the contract.' (Geraci 2006a, 5)

NOBODY can be used as a determiner as well, in this case it selects a noun phrase, as we can see in the example below where NOBODY refers to the noun phrase CHILD.

neg
IX$_1$ CHILD++ SEE NOBODY
'I don't see any children.'

In LIS, there is a very common negative adverb, that is NEVER. It is a two-handed sign, that shares the same movement and orientation with the sign NOBODY, but a different handshape, I instead of G.

NEVER

The sign NEVER alone is able to convey a negative meaning to the sentence and its position is postverbal, as in the example below.

neg
GIANNI CONTRACT PUT_SIGNATURE NEVER
'Gianni never signed the contract.'

1.5.1.2 Syntax of negative clauses

Negative clauses have a specific structure that will be described in the following paragraphs.

1.5.1.2.1 Position of negative elements

In negative clauses, negation follows the verb. Manual negation is often accompanied by a non-manual negation: the head moves by turning to the right and to the left.

An aspect that should be deepened is the interaction between the aspectual marker DONE [SYNTAX 2.3.1.2] and the negative markers. The aspectual marker DONE is in a postverbal position. No negative element can co-occur with DONE. So, DONE is not acceptable in negative sentences.

As to sentences with modals, the negative elements are after the modals, as in the example below.

neg
GIANNI CONTRACT PUT_SIGNATURE BE_ABLE^NOT
'Gianni cannot sign the contract.'
(adapted from Geraci 2006b, 102)

In LIS, the right periphery of the sentence (the area after the verb), can be very crowded: it can host negative elements, *wh*-signs, modals, and DONE. We saw that DONE is not compatible with negation and we described the interaction of negative elements and modals.

Wh-signs follow the verb, the aspectual markers and the modals [SYNTAX 2.3.2.1]. If negative elements are present, they follow the verb but precede *wh*-signs, as can be seen in the following example.

neg
a. GIANNI PUT_SIGNATURE NOT_YET $Q_{artichoke}$
'What did Gianni not yet sign?'

neg
b. SIGN NOTHING IX_{2pl} WHO
'Who of you has not signed anything?'

1.5.1.2.2 Doubling

In LIS, negation can never be doubled, like in standard English and unlike in Italian. Differently from negative concord that we will see in the following paragraph, in doubling, the same negative element is repeated/reduplicated within the negative clause: the two instances of negation are cancelled, giving rise to a positive reading. In LIS, it is not possible to have two negative markers or two *n*-words (either identical or different) in the same sentence. Negative markers, quantifiers and adverbs are able, by themselves, to convey negative force to the sentence.

1.5.1.2.3 Negative concord

Negative concord is a phenomenon whereby two negations that occur in a sentence are interpreted as a single negation. There are two types of negative concord possible in sign languages: i) negative concord between a non-manual and a manual component and ii) negative concord between two manual components.

In LIS, only the first type of negative concord is possible, while it is not possible to find two negative manual elements.

Negative non-manuals obligatory co-occur with negative manual components, as shown in the following example.

neg
GIANNI CONTRACT PUT_SIGNATURE NOT
'Gianni did not sign the contract.'
(adapted from Geraci 2006b, 109)

1.5.2 Non-manual marking of negation

LIS shows different non-manual markings of negation, like head movements, facial expressions and body posture.

1.5.2.1 Head movements

In LIS, head tilt (reported as head nod) is used to mark affirmative responses to questions or for emphasis.

On the contrary, the movement of the head that rotates from right to left repeatedly characterizes negative clauses. Specific head movements (headshake) co-occur with all negative markers and *n*-words described above. Differently from other sign languages, in the variety of LIS considered here, the use of negative non-manual markers as the only signal for sentential negation is ungrammatical, but data collected for some studies show that the situation could be different in other parts of Italy.

Headshake only co-occurs with negative signs: it starts with the negative sign and can continue after the sign has been articulated. It generally does not spread over other signs of the sentence, as in the following examples.

hs
a. PAOLO CONTRACT PUT_SIGNATURE NOT
'Paolo did not sign the contract.'
(Geraci 2006a, 5)

hs
b. GIANNI CONTRACT PUT_SIGNATURE CAN NOT
'Gianni cannot sign the contract.' (Geraci 2006a, 5)

hs
c. CONTRACT PUT_SIGNATURE NOBODY
'Nobody signed the contract.' (Geraci 2006a, 5)

The only cases of wide spreading of negative non-manual markings are the ones in which *n*-words occur in preverbal position, like in the example below.

hs
NOBODY CONTRACT PUT_SIGNATURE
'Nobody signed the contract.'
(Geraci 2006a, 5)

So, spreading of negative non-manual markers is very rare and occurs when some manual elements are in a marked position.

This peculiar spreading of negative non-manual marking can be seen also in the use of another *n*-word: the sign glossed DICK.

DICK

It corresponds to an Italian vulgar word indicating the male genital organ, but it is also used to say 'nothing at all' in the low register of Italian. Like in Italian, in LIS the sign DICK can be used with the meaning of 'nothing' in negative clauses.

neg
a. GIANNI SEE DICK
'Gianni didn't see shit.'

b. GIANNI DICK SEE
'Gianni saw a penis.' (based on Geraci 2006b, 126)

The only lexical difference between the sign used to refer to the male genital organ (b) and the one used to negate the clause (a), is the presence of the negative non-manual marking (neg). The use of DICK as a negative marker may be influenced by Italian, but it is interesting to notice that it obeys the LIS rule concerning the position of negative elements (when DICK is an *n*-word, it must occur post-verbally as other negative quantifiers do) and that it is marked by the negative non-manual marking.

1.5.2.2 Facial expressions

Head movement is often carried out with particular facial expressions.

Facial expressions related to negation include frowning, eyebrows lowered, and mouth corners down.

1.5.2.3 Body posture

To be developed.

1.5.2.4 Spreading domain

As previously said, two possible spreading options of head movement can be observed: i) over the manual negative sign only and ii) over the whole sentence, but only in marked cases where the *n*-word is in preverbal position.

Information on Data and Consultants

The descriptions in these sections are based on the references below. The linguistic data illustrated as images and video clips have been checked through acceptability judgments and have been reproduced by Deaf native-signing consultants. The images and video clips in [SYNTAX 1.3] have been elicited for the research summarised in Donati et al. (2017). The remaining images and video clips have been collected with Deaf native-signing consultants.
The descriptions in [SYNTAX 1.4] are based on data collected by the author. The video clips exemplifying the linguistic data have been produced by native signers living in the north of Italy.

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2 Clause structure

Summary 2.1 The syntactic realization of argument structure. – 2.2 Grammatical functions. – 2.3 Word order. – 2.4 Null arguments. – 2.5 Clausal ellipsis. – 2.6 Pronoun copying.

In this chapter, the reader will be introduced to the architecture of clause structure. We will describe how predicates select arguments and how this determines the final form of the clause.

2.1 The syntactic realization of argument structure

Verbs combine with a specific number of referents or participants in order to express a full predication that refers to an event or a situation. Participants that obligatory appear with a predicate are called *arguments*. The argument-taking property of a predicate constitutes the *argument structure* of that predicate.

The argument structure of a predicate in LIS is strictly connected to the number and type of arguments required by its syntax to represent an event.

Arguments are typically distinguished by their role (also called thematic role) in the event or state the sentence talks about. For example, an argument can receive the (thematic) role of agent (the argument which starts an action, as 'Gianni' in 'Gianni broke the window'), theme/patient (the argument which is affected by the action, as 'the window' in 'Gianni broke the window') goal (the argument which is the final point of a transfer as 'Gianni' in 'Maria gave Gian-

ni a letter') or experiencer (the argument to which a certain psychological state is attributed, as 'Gianni' in 'Gianni is happy').

Commonly, arguments of a predicate are associated with the subject, the direct object and the indirect object. In this respect, arguments are different from *adjuncts*, represented, for example, by time, locative, and manner adverbials, since they contribute to the knowledge of the event with additional, non-required information.

In this section, we describe how arguments are mapped onto the syntactic structure of LIS predicates. This is a domain where syntax and morphology interact, so overlapping between sections of the lexicon, morphology and syntax within the grammar are expected.

LIS displays transitive, ditransitive and intransitive verbs and the type of verb determines the number and type of arguments. The syntactic and thematic role of arguments is equally important in the argument structure of LIS predicates: while the syntactic role (subject, direct object, and indirect object) determines the position of the argument in the sentence [SYNTAX 2.3.1.1], the thematic role (agent versus theme, for example) can influence the hand configuration of a class of predicates, namely classifier predicates [SYNTAX 2.1.1.5].

We will see that arguments may be expressed through noun phrases, pronouns, full clauses, or they can be incorporated in classifier predicates. The type of argument produced may affect the word order of elements in the sentence [SYNTAX 2.3] and, vice versa, the type of predicate employed may have an impact on the overt realization of arguments. We will illustrate how LIS displays pairs of predicates with the same verbal root, but with an intrinsically different argument structure. We will observe transitive/intransitive and unaccusative/unergative alternation of the predicate pair, determining a different selection of arguments.

2.1.1 Types of predicates

LIS predicates can be transitive, ditransitive and intransitive. This classification reflects the number of arguments required by the predicate to adequately represent the event. Transitive verbs in LIS select for two arguments, the subject and the object; ditransitive verbs select for three arguments, the subject, the direct object and the indirect object; while intransitive verbs select for only one argument, the subject.

In this section, the three types of predicates are described with a direct reference to the LIS predicates representing each type. Psychological and meteorological predicates are also illustrated, as well as the presence of predicates whose argument structure varies according to the thematic role of the arguments selected.

2.1.1.1 Transitive and ditransitive predicates

LIS transitive predicates select for two arguments. The prototypical thematic roles for the two arguments of transitive predicates are agent and theme, syntactically realized as subject and direct object, respectively. As for the thematic roles of the two arguments required by LIS transitive predicates, however, some variation is attested. The subject of a transitive predicate like FORGET, for example, has the thematic role of experiencer, while the object of a verb of movement like GO, when used transitively, has the thematic role of goal.

LIS transitive predicates belong to all verbal classes: plain verbs, agreement verbs, and spatial verbs [LEXICON 3.2].

Transitive predicates in LIS can be plain verbs like EAT, DRINK, PHOTOGRAPH, WANT, FORGET articulated on the body of the signer. In the following example, the verb FORGET is a plain verb selecting an experiencer, LUCA, and a theme, KEY.

L-U-C-A KEY FORGET
'Luca forgot the keys.'

Transitive predicates in LIS can also be agreement verbs with two points of articulation in the neutral space, like KILL (a); agreement verbs with one point of articulation in the neutral space, like BREAK (b); and agreement verbs articulated on the body of the signer and moving towards the neutral space, like SEE (c).

a. M-A-R-I-O THIEF KILL
'Mario kills the thief.'

b. CHILD COMPUTER BREAK
'The child breaks the computer.'

c. L-U-C-A TELEVISION SEE
'Luca watches the television.'

Transitive verbs are also a subclass of LIS agreement verbs, called *backward verbs*, whose peculiarity is that they start in the location of the neutral space associated with the theme, object of the verb, and move towards the agent, subject of the verb. LIS backward verbs like TAKE, COPY, INVITE, RECEIVE, and CHOOSE belong to this class.

L-U-C-A KEY TAKE
'Luca takes the keys.'

Transitive predicates can finally be spatial verbs, like MOVE, taking two arguments (the agent and the theme) and optionally two locative adjuncts, represented in the following example by the locations in space corresponding to the beginning and end of verb movement.

IX$_1$ BOOK $_a$CL(flat open 5): 'move_book'$_b$
'I move the book (from here to there).'

On the other hand, the syntactic structure of verbs of movement, like GO, RUN, and ARRIVE, is difficult to determine, as they select for the subject argument and for an implicit argument, the goal or locative argument, SCHOOL in the following example. In these verbs, the goal argument is semantically obligatory, that is, it must be shared by the interlocutor, but syntactically optional, as verbs of movement can also be used intransitively. In order to be omitted, the goal argument must be contextually given.

CHILD SCHOOL ARRIVE
'The child arrived at school.'

LIS ditransitive predicates select for three arguments. The prototypical semantic roles for the three arguments of ditransitive predicates are agent, theme and goal. They are syntactically realized as subject, direct object and indirect object respectively, and often express some notion of transfer.

LIS ditransitive predicates can be agreement and spatial verbs. Ditransitive predicates in LIS are agreement verbs with two points of articulation in the neutral space, like DONATE (a) and agreement verbs whose starting point is on the signer's body, like SAY (b).

a. WOMAN CHILD BOOK DONATE
'The woman donates a book to the child.'

b. L-U-C-A P-A-O-L-O LIE SAY
'Luca tells a lie to Paolo.'

Likewise, classifier predicates conveying the concept of transfer select for three arguments: the agentive subject, the theme direct object, and the goal indirect object, as shown below.

a. L-U-C-A G-I-A-N-N-I DRINKING_GLASS CL(unspread curved open 5): 'give_glass'
'Luca gives a/the glass to Gianni.'

b. L-U-C-A G-I-A-N-N-I CAR CL(closed 5): 'lend_car'
'Luca lends the car to Gianni.'

Ditransitive spatial verbs, like CL(flat open 5): 'put_book', select for a subject, direct object, and locative argument.

TEACHER BOOK SHELF CL(flat open 5): 'put_book'
'The teacher puts the book on the shelf.'

2.1.1.2 Intransitive predicates: unergatives and unaccusatives

LIS intransitive predicates select for one argument, the subject. On the basis of the thematic role of the subject argument, they can be distinguished into unergative and unaccusative verbs.

The subject of LIS intransitive unergative predicates has the thematic role of agent. Activity verbs like DANCE, TALK, RUN, LAUGH belong to this class. Intransitive unergative predicates in LIS can be plain verbs and agreement verbs. Intransitive unergative plain verbs like SLEEP, LAUGH, CRY, and COUGH are produced on the body of the signer (a), while intransitive unergative agreement verbs are produced in the neutral space without movement displacement, like the verbs WORK, RUN, and PLAY (b).

a. M-A-R-I-A LAUGH
'Maria laughs.'

b. CHILD PLAY
'The child plays.'

The subject of LIS intransitive unaccusative predicates has the thematic role of theme and is typically non-agentive. In LIS, intransitive unaccusative predicates can be plain verbs like BE_BORN produced on the body of the signer (a), agreement verbs with two points of articulation in the neutral space, like ARRIVE (b), and agreement verbs with one point of articulation in the signing space like DIE, FALL_DOWN, BRAKE, MELT, RISE, COLLAPSE, LEAVE, and GROW_UP (c). In some sentences, the distinction between unaccusative and unergative predicates based on the semantic role of the subject is not very intuitive, as in a sentence like 'The teacher arrived'. However, the fact that the subject of 'arrive' can be inanimate ('The letter arrived', as in (d)) indicates that the subject is not an agent, so the verb 'arrive' is usually classified as unaccusative.

a. YESTERDAY BABY BE_BORN
'Yesterday the baby was born.'

b. TEACHER ARRIVE
'The teacher arrived.'

c. P-A-O-L-O GROW_UP
'Paolo has grown up.'

d. LETTER ARRIVE DONE
'The letter arrived.'

When the object of otherwise transitive predicates like EAT, DRINK, GO, and RUN is contextually understood, they can be used intransitively. In this case, they only select for the subject argument.

L-U-C-A EAT DONE
'Luca ate.'

2.1.1.3 Psychological predicates

Psychological predicates express a mental state. LIS distinguishes between stative psychological predicates, like HATE, BE_ANGRY, LIKE, and FEAR and causative psychological predicates, like the English verb 'scare', indicating that an agent induces the psychological state of the experiencer. In the following example, we illustrate a stative psychological predicate represented by a transitive plain verb selecting a subject with the thematic role of experiencer, IX_1, and an object with the thematic role of theme, WAR.

IX_1 WAR FEAR
'I fear wars.'

Psychological stative predicates can also be transitive agreement verbs selecting a subject with the thematic role of experiencer and a direct object with the thematic role of theme, as in the following example where the verb HATE is produced in the neutral space with two points of articulation.

L-U-C-A P-A-O-L-O HATE
'Luca hates Paolo.'

As for causative psychological predicates, LIS employs a causative auxiliary, GIVE_AUX and a sign expressing the psychological state, like FEAR.

EARTHQUAKE GIVE$_1$_AUX FEAR
'Earthquakes scare me.'

2.1.1.4 Meteorological predicates

In LIS, meteorological predicates like RAIN (a) and SNOW (b) do not select for any overt argument, as shown in the examples below.

a. TODAY RAIN
'Today it rains.'

b. TOMORROW SNOW
'Tomorrow it will snow.'

2.1.1.5 Argument structure alternations

In LIS, the same verbal root may appear in a transitive or intransitive event. This alternation is found both in lexical and classifier predicates.

In lexical predicates, the same verbal root can be found in transitive constructions selecting an agentive subject and an object with the thematic role of theme (a), and in intransitive unaccusative predicates selecting a subject with the thematic role of theme (b), as illustrated in the following examples.

a. CHILD COMPUTER BREAK
'The child breaks the computer.'

b. COMPUTER BREAK
'The computer breaks down.'

In LIS classifier predicates, the transitive/intransitive and unergative/unaccusative alternations are encoded through a different hand configuration. More specifically, handle classifiers [MORPHOLOGY 5.1.3] are used in transitive predicates encoding an agentive subject and a theme object, as in (a) below, while entity classifiers [MORPHOLOGY 5.1.1] are used with intransitive unaccusative predicates encoding a

theme subject, as in (b). The examples below illustrate the transitive /intransitive unaccusative alternation.

a. M-A-R-I-A BOOK CL(flat open 5): 'take_book'
'Maria took the (standing) book.'

b. BOOK CL(unspread 5): 'book_fall_down'
'The (standing) book fell down.'

Furthermore, bodypart classifiers [MORPHOLOGY 5.1.2] are used in intransitive unergative predicates encoding an agentive subject, as in (a) below, while entity classifiers are used in intransitive unaccusative predicates encoding a theme subject, as in (b). The unergative / unaccusative alternation is illustrated in the examples below.

a. WOMAN CL(closed 5): 'bow'
'The woman bows.'

b. WOMAN CL(V): 'fall_down'
'The woman falls down.'

2.1.2 Argument realization

In LIS, verbal arguments can be realized as noun phrases, pronouns, they may be incorporated in classifier predicates by being encoded in their hand configuration, or they can be full clauses. This section illustrates these possibilities.

2.1.2.1 Overt noun phrases

It is very common for LIS to realize arguments as noun phrases, both as common nouns and proper names. When this happens, they occupy their argument position in an unmarked word order [SYNTAX 2.3], as shown in the example below.

L-U-C-A ELEPHANT LIKE
'Luca likes elephants.'

However, overt noun phrases may also appear in non-argument positions as an effect of syntactic modification induced by discourse factors, such as topic or focus [PRAGMATICS 4]. When this happens, noun

phrases are always produced with a specific non-manual marking signalling their production in a different position. The following sentence shows an object noun phrase produced at the beginning of the sentence, as an effect of topicalisation.

top
ELEPHANT L-U-C-A LIKE
'As for elephants, Luca likes them.'

The same argument, when composed of more than one sign, may occur as a discontinuous constituent, that is, part of it appears in its argument position, while another part occurs in a non-adjacent position in the sentence. In the example below, the signs VEGETABLE ALL form one constituent but, due to topicalisation of the noun phrase VEGETABLE, the quantifier ALL is separated from it and it is produced in object position [SYNTAX 4.4.2].

top
VEGETABLE L-U-C-A ALL LIKE
'As for vegetables, Luca likes them all.'

In the following example, the signs FRIEND NOBODY form one constituent, however only the noun phrase FRIEND appears in object position, while the negative quantifier NOBODY occupies the position in the sentence devoted to negative elements [SYNTAX 1.5.1.2.1].

neg
L-U-C-A FRIEND INVITE NOBODY
'Luca didn't invite any friend.'

Similarly, in the following example, the signs BOOK WHICH form a single constituent, but only the noun phrase BOOK occupies the object position, while the sign WHICH occupies the common position in the sentence devoted to *wh*-phrases [SYNTAX 1.2.3.5].

wh
STUDENT BOOK BUY WHICH
'Which book did the student buy?'

2.1.2.2 Pronouns

In LIS, arguments may also be produced as pronouns. Within this category, we can find personal pronouns [LEXICON 3.7.2], demonstrative pronouns [LEXICON 3.7.1], possessive pronouns [LEXICON 3.7.3], and reflexive pronouns [LEXICON 3.7.4]. The examples below illustrate a personal pronoun (a) and a demonstrative pronoun (b) argument.

a. IX$_1$ EARTHQUAKE FEAR
'I fear earthquakes.'

b. IX$_1$ LIKE IX(dem)
'I like this one.'

2.1.2.3 Verb agreement

Verb agreement helps identifying the argument structure of predicates, as it is produced only with arguments, and it concerns both personal and locative agreement. We shall look at how verb agreement is realized in LIS, both manually and non-manually.

2.1.2.3.1 Manual verb agreement

In LIS, morphological manual agreement of the verb with its arguments takes place only with agreement verbs and spatial verbs. As previously illustrated [SYNTAX 2.1.1], these verb classes surface in transitive, ditransitive and intransitive constructions.

In transitive constructions displaying an agreement verb, subject agreement encodes the agent argument and object agreement encodes the theme argument. Depending on the physical articulation of agreement verbs, morphological manual agreement is subject to variation.

Agreement verbs with two points of articulation in the neutral space show overt morphological agreement with both the subject and object. The sign for the verb starts in the location of the signing space associated with the subject to move toward the location associated with the object, as in the following example.

TODAY IX$_a$ HORSE$_a$ IX$_b$ SASS: 'small' HORSE$_b$ IX$_{3a}$ $_a$GIVE_BIRTH$_b$
'Today the horse gave birth to the pony.'

Agreement verbs with one point of articulation in the neutral space, like BREAK, and agreement verbs articulated on the body of the signer moving towards the neutral space, like SEE, overtly agree only with the theme argument, as shown in (a) and (b) respectively.

a. CHILD COMPUTER$_a$ BREAK$_a$
'The child breaks the computer.'

b. L-U-C-A TELEVISION$_a$ SEE$_a$
'Luca watches television.'

When a verb like SEE selects for a first person singular subject, however, agreement is with both the subject and the object, as the movement path starts from the signer's body.

In ditransitive constructions displaying an agreement verb with two points of articulation in the neutral space, morphological manual agreement is with the subject argument, encoding the agent/source, and the indirect object, encoding the goal/recipient argument. The theme argument is not expressed through agreement morphology on the verb.

P-A-O-L-O$_a$ G-I-A-N-N-I$_b$ CAR $_a$DONATE$_b$
'Paolo donates the car to Gianni.'

An exception to morphological agreement in ditransitives is represented by classifier predicates encoding the features of the theme through hand configuration, thus showing overt manual agreement with the three arguments [SYNTAX 2.1.2.4].

a. L-U-C-A$_a$ G-I-A-N-N-I$_b$ DRINKING_GLASS $_a$CL(unspread curved open 5): 'give_drinking_glass'$_b$
'Luca gives the glass to Gianni.'

b. L-U-C-A$_a$ G-I-A-N-N-I$_b$ CAR $_a$CL(closed 5): 'lend_car'$_b$
'Luca lends the car to Gianni.'

As shown in the examples above, morphological agreement of classifier predicates with the direct object through hand configuration does not imply omission of the object argument.

In ditransitive constructions displaying an agreement verb articulated on the body of the signer moving towards the neutral space, overt morphological manual agreement is only with the indirect object, as shown in the following example.

L-U-C-A P-A-O-L-O$_a$ LIE SAY$_a$
‘Luca tells a lie to Paolo.’

In intransitive unergative constructions displaying an agreement verb produced in the neutral space without movement displacement, the verb may (a) or may not (b) show overt morphological spatial agreement with the agentive subject.

a. CHILD$_a$ PLAY$_a$
‘The child is playing.’

b. CHILD PLAY
‘The child is playing.’

On the other hand, in intransitive unaccusative predicates, agreement verbs obligatorily show overt spatial agreement with the theme argument encoding the subject.

LIFT$_a$ BREAK$_a$
‘The lift broke down.’

Spatial verbs are the other class of verbs showing manual agreement by means of path movement (with motion verbs) or localization at a point (with locative verbs). With motion verbs, the initial and final points of the path agree with the locations of the source and goal arguments that define the path, as in the following examples.

a. L-U-C-A$_a$ BANK$_b$ $_a$RUN$_b$
‘Luca runs to the bank.’

b. BOLOGNA$_a$ ROME$_b$ $_a$BRING$_b$
‘(He) brought (it) from Bologna to Rome.’

As previously seen for the agreement verb GIVE, the spatial verb PUT is often produced through a classifier predicate encoding the features of the theme through hand configuration, thus showing overt manual agreement with the agent, theme, and locative argument, as shown in the example below.

L-U-C-A$_a$ BOOK SHELF$_b$ $_a$CL(flat open 5): ‘move_book’$_b$
‘Luca puts the book on the shelf.’

Non-movement spatial verbs that have a location argument simply agree with it by localizing the verbal sign in the same position of the location argument, as shown by the verb STAY in the following example.

S-A-R-A THREE^YEAR ROME$_a$ STAY$_a$
'Sara stayed in Rome for three years.'

Intransitive non-movement spatial verbs with a location argument may also be produced through a classifier predicate whose hand configuration encodes agreement with the subject, as shown below.

CHILD$_a$ CL(G): 'be_at'$_a$
'The child stands.'

In general, agreement and spatial transitive predicates must show overt morphological agreement with the direct object. Agreement and spatial ditransitive predicates must show overt morphological agreement with the indirect object. For both types of predicates, agreement with the subject is optional. Intransitive unergative predicates optionally show morphological agreement with the subject, while intransitive unaccusative predicates obligatorily show agreement with the subject.

Lack of overt morphological agreement in LIS is allowed for quantified arguments, such as negative quantifiers (NOTHING, NOBODY), or non-specific and generic quantifiers (SOMETHING, SOMEONE). The following example shows a negative quantifier and the lack of verb agreement.

L-U-C-A BUY NOTHING
'Luca didn't buy anything.'

With causative psychological predicates, the causative auxiliary GIVE_AUX shows overt morphological agreement with the subject and the experiencer object, as in the following example where the experiencer is a first person.

EARTHQUAKE$_{a\ a}$GIVE$_1$_AUX FEAR
'Earthquakes scare me.'

In predicates displaying argument structure alternation, the verb only shows overt morphological manual agreement with the theme argument (COMPUTER in the examples below), that is the sentence object in (a), and the subject in (b).

a. CHILD COMPUTER$_a$ BREAK$_a$
'The child breaks the computer.'

b. COMPUTER$_a$ BREAK$_a$
'The computer breaks down.'

Finally, it is important to point out that covert arguments are possible in LIS, if contextually understood. An illustration of the possibility to have covert arguments is provided by the following examples exemplifying a transitive (a) and a ditransitive predicate (b).

a. $_a$SCOLD$_b$
'(S)he scolds him/her.'

b. BOOK $_a$CL(flat open 5): 'give_book'$_b$
'(S)he gives the book to him/her.'

Plain verbs do not display overt morphological agreement with their arguments in LIS. However, an exception to this generalization is represented by plain verbs produced through a classifier predicate in transitive constructions whereby the hand configuration is determined by the theme argument, thus showing overt agreement with the object. An example is provided below.

L-U-C-A SANDWICH CL(flat open 5): 'eat_sandwich'
'Luca eats a sandwich.'

2.1.2.3.2 Non-manual verb agreement

Another way to mark agreement in LIS is through non-manual markers. Non-manual agreement in LIS is optional and may be realized with all verb classes.

The two non-manual articulators involved are head tilt (ht) and eye gaze (eg). Commonly, the head tilts toward the location of the subject argument and eye gaze is directed towards the location of the object argument simultaneously to the production of the verbal sign. The two non-manual markers may be produced singularly, as in (a), or together, as in (b). With intransitive predicates, either one of the two non-manual articulators can mark subject agreement (c).

ht: a
a. L-U-C-A_a P-A-O-L-O_b $_a$HATE$_b$
'Luca hates Paolo.'

ht: a
eg: b
b. L-U-C-A_a P-A-O-L-O_b $_a$HATE$_b$
'Luca hates Paolo.'

eg
c. BOOK CL: 'fall_down'
'The book falls down.'

2.1.2.4 Classifier handshape

The relevance of classifier handshape for clause structure in LIS is twofold. First, it can encode agreement with the direct object of a transitive and ditransitive predicate or with the subject of an intransitive predicate by representing some visually salient property of the argument [SYNTAX 2.1.2.3.1]. Second, it is able to determine the argument structure of a predicate according to the following specification [SYNTAX 2.1.1.5]: i) classifiers with a handling hand configuration select for transitive predicates, ii) classifiers with an entity hand configuration select for intransitive unaccusative predicates, and iii) classifiers with a bodypart hand configuration select for intransive unergative predicates. In this respect, by morphologically marking the thematic role of arguments, LIS seems to behave as ergative languages.

2.1.2.5 Argument clauses

Arguments in LIS may also be expressed through full clauses encoding the syntactic role of subject [SYNTAX 3.3.1] and object [SYNTAX 3.3.2].

The following sentence is an example of a subject dependent clause.

IMPORTANT IX$_2$ SAY$_1$
'It is important that you tell me.'

The following is an example of a LIS sentence where a subordinate clause serves as an object.

P-I-E-R-O CONTRACT PUT_SIGNATURE DONE G-I-A-N-N-I KNOW
'Gianni knows that Piero signed the contract.'

2.1.3 Argument structure changes

This section describes different grammatical operations that can affect the argument structure of a predicate and thus alter its valency either by increasing it or by reducing it.

In [SYNTAX 2.1.3.1] the basic argument structure of a verb is increased to include an extra argument, while in the remaining of the section other constructions altering the argument structure of the predicate are considered, as passive constructions [SYNTAX 2.1.3.2], predicates expressing reflexivity [SYNTAX 2.1.3.3] and reciprocity [SYNTAX 2.1.3.4].

2.1.3.1 Extension of argument structures

The basic argument structure of a verb can be extended to include an extra argument expressing a non-obligatory thematic role. In the sentence below, an extra beneficiary argument, DOG POSS(G)$_1$, is added to the sentence yielding the word order subject-beneficiary-object-verb.

IX$_1$ DOG POSS(G)$_1$ IX COLLAR IX$_1$ BUY
'I buy a collar for my dog.'

An extra argument specifying the subject matter can be added, as in the example below, where it is specified what the topic of the talk is, namely, the school for the Deaf 'Magarotto'.

YESTERDAY SCHOOL MAGAROTTO IX$_1$ FRIEND TALK DONE
'Yesterday a friend of mine and I talked about the school Magarotto.'

In both sentences, no specific marker introduces the extra argument.

Another case of argument extension is called causativisation, by which a causer is added to the structure, resulting in a complex event having a causer and a caused event. An example is provided by the following sentence, where FATHER is the causer of the event of breaking a fishing rod. The causer is encoded lexically by the handling classifier, which incorporates the change of state of the object.

FATHER POSS(G)$_1$ FISHING_ROD IX$_3$ CL(closed 5): 'break_fishing_rod'
'My father broke the fishing rod by snapping it.'

The resultant state yielded by the complex event may require further representation by an additional predicate, as in the example below, where another classifier (SASS) specifies the resultant state of the teared piece of paper.

CHILD$_a$ PAPER IX$_{3a}$ CL(F): 'tear_paper' SASS(flat open L): 'long_thin_object'
'The child shreds a piece of paper.'

Finally, LIS has a specialized causative auxiliary, GIVE_AUX, to express a change of psychological state [SYNTAX 2.1.1.3], as shown in the examples below.

a. PE$_{a\ a}$GIVE$_1$_AUX ANGER
'That makes me angry.'

b. SUMMER GIVE$_1$_AUX GLAD
'Summer makes me happy.'

2.1.3.2 Passive

Passivisation is considered to be a sub-type of clausal change, as the theme/patient argument of a transitive or ditransitive verb is promoted to the subject position, the agent argument is absent or optionally expressed, and the verb undergoes some modification. The sentence 'the woman brushes the horse' is an English active sentence, while 'the horse is brushed (by the woman)' is a passive construction.

When using a passive sentence, the speaker/signer foregrounds the patient argument of the predication that occupies the subject position.

The functional equivalent of a passive sentence in LIS takes on different features according to the verb class of the sentence predicate.

With transitive agreement verbs with two points of articulation [LEXICON 3.2.2], the theme is produced in subject position, the verb starts being articulated in a point of the neutral space not previously associated with an (agent) argument to end on the signer's body. Role shift [SYNTAX 3.3.3], whereby the signer adopts the perspective of a referent, here the theme, is realised. The following sentences are functionally equivalent to passives.

rs: 1a
a. WOMAN$_{a}$ $_{3b}$SLAP$_{1a}$
'The girl is slapped.'

rs: 1a
b. CAT$_{a}$ $_{3b}$PUNCH$_{1a}$
'The cat is punched.'

Optionally, the agent argument is produced after the theme subject, as shown in the example below.

bl: a eg:b rs: 1a
CAT DOG $_{3b}$PUNCH$_{1a}$
'The cat is punched by the dog.'

The active counterparts of the previous sentences are reported in (a) and (b) below.

bl: a bl: b
a. MAN WOMAN $_{3a}$SLAP++$_{3b}$
'The man slapped the girl.'

bl: a ht: b
b. DOG CAT $_{3a}$PUNCH$_{3b}$
'The dog punched the cat.'

Backward verbs [LEXICON 3.2.2] fall into this verb class. To express a passive meaning, a backward verb starts being articulated from the position of the theme to a position in the neutral space not associated with a previously introduced referent. A peculiarity of these types of sentences seems to be the lack of role shift, as shown in the following example.

a. GIULIA$_{a}$ PARTY$_{b}$ $_{a}$INVITE$_{b}$
'Giulia has been invited to the party.'

b. COMPUTER$_{a}$ $_{a}$TAKE$_{b}$
'The computer has been taken.'

If the sentence contains a classifier predicate [MORPHOLOGY 5.1], the strategy to express a passive meaning is similar to the one observed with agreement verbs with two points of articulation: the theme argument is produced in subject position, the agent argument is often

absent and role shift is observed only with animate theme arguments. The classifier predicate starts in a position of the neutral space not associated with a previously introduced agent argument and it ends on the signer's body. A final remark is the morphological reduction of the verb that is produced with a shorter movement.

a. DUCK$_{a\ 3b}$ CL(unspread curved open 5): 'strangle'$_{1a}$ (rs: 1a)
'The duck is strangled.'

b. CAT$_{a\ 3b}$ CL(closed G): 'hit_with_hammer'++$_{1a}$ (rs: 1a)
'The cat is hit with the hammer repeatedly.'

Again, the agent argument may be optionally expressed. When it is, it follows the theme subject:

ht: a
CAT$_a$ MOUSE$_{b\ 3b}$ CL(closed G): 'hit_with_hammer'++$_{1a}$ (rs: 1a)
'The cat is hit with the hammer by the mouse repeatedly.'

The active counterparts of the above sentences are provided below.

bl: a bl: b
a. MAN DUCK CL(closed 5): 'strangle'$_{3b}$
'The man strangles the duck.'

bl: a bl: b
b. MOUSE$_a$ CAT $_{3a}$ CL(closed G): 'hit_with_hammer'++$_{3b}$
'The mouse hits the cat with the hammer repeatedly.'

If the sentence contains an agreement verb with one point of articulation [LEXICON 3.2.2], the passive meaning cannot be expressed via role shift, regardless of the animate/ inanimate feature of the theme argument.

Within this verb class, the predicate spatially agrees with the theme argument occupying the subject position. No explicit nor impersonal [PRAGMATICS 1.5] agent argument is present.

a. HOUSE$_a$ SELL$_a$ DONE
'The house has been sold.'

b. THIEF$_a$ IX$_a$ ARREST$_a$
'The thief has been arrested.'

The following examples displaying agreement verbs with one point of articulation show the signer's answer to the question: 'what happened to the house?' (a) and 'what happened to the chocolate cream?' (b).

a. HOUSE$_a$ WIND COLLAPSE$_a$
'The house has been destroyed by the wind.'

b. CHOCOLATE CL(unspread V): 'scoop_out' CL(unspread V): 'spread'
'The chocolate cream has been scooped out and spread (on bread).'

Passive constructions with plain verbs have not been observed. This might be due to the fact that plain verbs are produced on the signer's body, therefore, the spatial strategies used to express the meaning of a passive sentence cannot be adopted.

2.1.3.3 Reflexivity

The argument structure of a predicate can also be modified through reflexivity [LEXICON 3.7.4]. When a predicate expresses reflexivity, the two arguments of the same predicate are coreferent.

LIS expresses reflexivity through the realisation of the verb on the body of the signer, regardless of the person feature (third person in (a), first person in (b) and (c)) and of the verb class, plain verbs (a) and agreeing verbs (b), (c).

a. PIETRO$_a$ IX$_a$ WASH
'Pietro washes himself.'

b. PIETRO$_a$ $_a$KILL$_1$
'Pietro killed himself.'

c. UNIVERSITY COURSE++ MANY. IX$_1$ ASK++$_1$ IX$_1$ FIT WHICH
'There are many courses at university. I keep asking myself which is more fitting (for me).'

Another way to express reflexivity is through the use of reflexive pronouns [LEXICON 3.7.4]. Two types of reflexive pronouns are available: i) the pronoun IX_PERSON directed toward the locus in space associated with the referent involved in the reflexive predicate (a) and ii) a reflexive pronoun articulated on the signer's chest (b).

a. WOMAN IX_a PAINT IX_{3a}_PERSON
'The woman is painting herself.'

b. IX_a WOMAN PAINT SELF
'The woman is painting herself.'

2.1.3.4 Reciprocity

In a reciprocal relation a plural argument is coreferential with another argument in the same predication and the arguments are both agents and undergoers of the action (see also [LEXICON 3.7.4]; [MORPHOLOGY 3.1.3]).

When a plain verb expresses a reciprocal relation, the object position is left empty and the predicate does not show any change in its realisation, as shown in (a) and (b) below.

a. IX_{1+3} LOVE
'She and I love each other.'

b. A-N-N-A L-U-C-A IX_{3a+3b} HUG
'Anna and Luca hug each other.'

The plain verb may also employ a reciprocal pronoun [LEXICON 3.7.4] glossed EACH_OTHER: a two-handed sign produced with curved open L handshape moving back-and-forth in the neutral space between the two referents of the reciprocal relation. The following example illustrates the use of the reciprocal pronoun.

IX_{1+2} UNDERSTAND EACH_OTHER
'You and I understand each other.'

With one-handed agreeing verbs, the reciprocal relation between the arguments is expressed by simultaneously reduplicating the verbal sign, which is produced as a two-handed sign, with the hands displaying the same handshape and movement, but opposite orientation and direction, as in the following examples.

a. dom: IX_{1+3} $_3$LOOK_AT$_1$
n-dom: $_1$LOOK_AT$_3$
'She and I look at each other.'

b. dom: IX_{3a+3b} $_a$KISS$_b$
n-dom: $_b$KISS$_a$
'They kiss each other.'

With two-handed agreeing verbs, the reciprocal relation between the arguments may be expressed by simultaneously reduplicating the verbal sign which is produced as a one-handed sign to allow the simultaneous realisation of the reciprocal relation, as shown below. In this case, the two-handed verbal sign has the same handshape, but the hands move toward opposite directions, as shown below:

a. dom: EVERY_YEAR CHRISTMAS $\text{IX}_{3a+3b\ a}\text{DONATE}_{b}$
n-dom: CHRISTMAS $_{b}\text{DONATE}_{a}$

'Every year at Christmas they give each other a present.'

b. dom: $\text{IX}_{3a+3b\ a}\text{HELP}_{b}$
n-dom: $_{b}\text{HELP}_{a}$

'They help each other.'

An alternative strategy to express reciprocity with two-handed agreement verbs is the sequential reduplication of the verb moving from the position in space associated with referent A towards the position in space associated with referent B and vice versa. The following examples show this possibility.

a. EVERY_YEAR CHRISTMAS $\text{IX}_{3a+3b\ a}\text{DONATE}_{b\ b}\text{DONATE}_{a}$

'Every year at Christmas they give each other a present.'

b. $\text{IX}_{3a+3b\ a}\text{HELP}_{b\ b}\text{HELP}_{a}$

'They help each other.'

There are verbs, like LOVE, that are produced on the signer's body as a starting point of articulation to move towards the neutral space as a point of arrival. In the first person plural, the verb LOVE, a two-handed sign, may also express reciprocity through what is called sequential reduplication: the sign is first articulated from the signer's body to the object of predication, and then back, as shown in the example below.

$\text{IX}_{1+3\ 1}\text{LOVE}_{3\ 3}\text{LOVE}_{1}$

'She and I love each other.'

LIS also has intrinsically reciprocal verbs, such as MEET (a) and ARGUE (b). These verbs do not change their way of articulation to express a reciprocal relation.

a. MORNING IX_{1+3} MEET
'This morning he and I met.'

b. IX_{3pl}^THREE ARGUE++
'The three of them always discuss with each other.'

2.1.4 Non-verbal predication

This section is devoted to describe constructions lacking an overt predicate. In LIS, lack of an overt predicate is found in copular constructions [SYNTAX 2.1.4.1] and secondary predication [SYNTAX 2.1.4.2].

2.1.4.1 Copular constructions

A case of non-verbal predication is the possibility for an adjectival phrase to predicate something of an argument. In the example below, the property of '(being) nice' is predicated of the argument 'Pietro'.

PIETRO NICE
'Pietro is nice.'

In LIS, copular constructions lack the presence of a copula, as opposed to the English translation of the sentence above.

A copular sentence, as the one above, is predicative when it ascribes a property to an argument. A copular sentence may also be specificational, when it specifies something of an argument. In the following sentence, the copular sentence specifies who the best student is.

STUDENT BEST A-D-A
'The best student is Ada.'

There are cases in which the distinction between a predicational and a specificational reading of the copular sentence is difficult to establish. This is the case of the following English sentence: 'His lunch is food for the dog'. In the predicational reading, this sentence means 'his lunch serves as food for the dog'. In LIS, this interpretation corresponds to the following sentence.

LUNCH FOOD POSS(G)$_3$ TYPE DOG
'His lunch is like food for the dog.'

In the specificational reading, the English sentence above means 'he eats food for the dog for his lunch'. In LIS, this interpretation has a different output, as shown in the sentence below.

LUNCH IX$_{3a}$ FOOD POSS(G)$_{3a}$ PE$_{3a}$ DOG POSS(5)$_{3b}$
'His lunch is the food for dogs.'

Another type of copular sentences is the locative sentence. In the following copular sentence, what is predicated of the argument 'Paride' concerns his location in space. Again, no copula surfaces.

PARIDE SCHOOL
'Paride is at school.'

2.1.4.2 Secondary predication

Another instance of non-verbal predication is secondary predication. A secondary predicate is an expression that attributes a property to the subject (or to another argument of the verb) but it is not the main predicate of the clause.

In the following sentences, the secondary predicate is represented by the signs TIRED (a) and NAKED (b).

a. CHILD++ HOUSE COME_BACK TIRED
'The children returned home tired.'

b. SUMMER PAST L-U-C-A NAKED STROLL
'Last summer Luca was walking naked.'

2.1.5 Existentials and possessives

While existentials assert the existence of some entity, possessives denote the possessive relation between the possessor and the object of possession. The two constructions are related in LIS. The reader can find a description of possessives and existentials in this section.

2.1.5.1 Possessives

In LIS, predicative possession can be expressed with the same sign used to express existential constructions [SYNTAX 2.1.5.2], namely the sign glossed EXIST, as shown in the sentences below. The sign EXIST is accompanied by repeated head nods (hn), protruding lips (lp) and, optionally, lowered eyebrow (le). The word order is possessor – possessum – EXIST.

le
lp
hn
a. IX$_1$ MOTORBIKE EXIST
'I have a motorbike.'

lp
hn
b. A-N-N-A PERU IX(loc) HOUSE EXIST
'Anna has a house in Peru.'

lp
hn
c. IX$_2$ TEMPERATURE EXIST
'You have temperature.'

y/n
d. IX$_2$ TIME FREE EXIST IX$_2$
'Do you have some free time?'

lp
hn
e. FATHER POSS(G)$_1$ FAMILY OTHER EXIST
'My father has another family.'

The verb EXIST is not obligatory in predicative possessives in LIS. It is often dropped, as shown in the examples below. In the absence of the sign EXIST, the non-manual markers head nod, protruding lips, and, optionally, lowered eyebrows are present over the last sign of the sentence, which, in the following sentences coincides with the possessum (except in predicative possessive polar questions (d) where the interrogative non-manual markers override the non-manual markers present in predicative possessive constructions).

le
lp
hn
a. IX$_1$ MOTORBIKE
'I have a motorbike.'

lp
hn
b. A-N-N-A PERU IX(loc) HOUSE
'Anna has a house in Peru.'

lp
hn
c. IX$_2$ TEMPERATURE
'You have temperature.'

y/n
d. IX$_2$ TIME FREE IX$_2$
'Do you have some free time?'

The negative counterpart of the sign EXIST is the suppletive sign EXIST.NOT [MORPHOLOGY 3.5.2], accompanied by a head shake and furrowed eyebrows (neg), as in the example below. The sign EXIST.NOT occurs at the end of the sentence after the possessor and the possessum.

neg
M-A-R-C-O IX$_a$ CAR EXIST.NOT
'Marco doesn't have a car.'

A possessive predication can also be negated with the negative sign NOT [SYNTAX 1.5.1.1.1], also accompanied by the same non-manuals marking negation in LIS, as shown in the following example. The negative sign NOT is produced in sentence-final position.

neg
M-A-R-C-O IX$_3$ CAR NOT
'Marco doesn't have a car.'

2.1.5.2 Existentials

Existential constructions in LIS can be produced with the verb EXIST in sentence-final position accompanied by repeated head nods (hn), protruding lips (lp) and, optionally, lowered eyebrows (le).

le
lp
hn
a. GARDEN DOG EXIST
'There is a dog in the garden.'

le
lp
hn
b. MILK EXIST
'There is some milk.'

le
lp
hn
c. MOUNTAIN SNOW EXIST
'There is snow on the mountain.'

The sign EXIST can also be dropped. In this case, the same non-manual markers that are usually produced over the sign EXIST accompany the last sign of the sentence and are often prolonged after it, as shown in the following examples.

le
lp
hn
a. GARDEN DOG
'There is a dog in the garden.'

le
lp
hn
b. MILK
'There is some milk.'

lp
hn
c. MOUNTAIN SNOW
'There is snow on the mountain.'

The same strategies employed to express existence are also used in possessive constructions [SYNTAX 2.1.5.1].

lp
hn
a. L-A-U-R-A IX$_a$ CHILD ONE EXIST
'Laura has one child.'

lp
hn
b. L-A-U-R-A IX$_a$ CHILD ONE
'Laura has one child.'

Since LIS uses the same strategies to mark possession and existence, the following sentence can receive both interpretations, namely, it corresponds to both an existential and a possessive sentence.

OFFICE POSS(G)$_1$ WINDOW ONE EXIST
'There is a window in my office.'
'My office has a window.'

Different unrelated negative signs can be used to express negative existentials: NOT (a), NOTHING (b), NOBODY (c). As in possessive constructions, the suppletive sign of EXIST, EXIST.NOT, is also employed (d).

The same non-manuals marking negative sentences [SYNTAX 1.5.2], namely, furrowed eyebrows and a side-to-side headshake (glossed 'neg'), spread over the negative existential sentence or only over the negative sign.

neg
a. PROBLEM NOT
'There is no problem.'

neg
b. PROBLEM NOTHING
'There is no problem.'

neg
c. PROBLEM NOBODY
'There is no problem.'

neg
d. PROBLEM EXIST. NOT
'There is no problem.'

2.2 Grammatical functions

Grammatical functions, such as subject and object, should not be confused with thematic roles, such as agent or patient, which convey semantic functions instead. It is true that syntactic grammatical functions systematically relate to semantic roles. For example, in active clauses where the verb has an agent and a patient, the agent will always be the subject and the patient the object, as shown in the example below, where the grammatical subject GIANNI also overlaps with the semantic role of the agent of the sentence, and conversely the grammatical object NAIL overlaps with the semantic function of the patient.

GIANNI NAIL CL(closed G): 'hit_with_hammer'++
'Gianni hammers a nail.'

However, the combination of grammatical and semantic functions is not always univocal. Indeed, there are many cases where the syntactic subject overlaps with other semantic roles, as for example in the sentence below where the grammatical subject (WIN^PERSON) overlaps with the semantic role of the recipient:

WIN^PERSON$_{a}$ PRIZE CL(closed 5): 'give_prize'$_{3a}$
'The winner received an award.'

LIS is a language with a relatively flexible word order [SYNTAX 2.3] and thus distinguishing grammatical functions can be more difficult than in languages which display a more fixed word order. Moreover, morphological case markers and agreement strategies [LEXICON 3.2.2] are not obligatory will all verbs in LIS. Still, it seems that grammatical functions can be distinguished in LIS through verb agreement.

2.2.1 Subject and object identification

Despite the complexities, some strategies exist to distinguish between the syntactic functions of subjects and objects. Firstly, the position of a word in a sentence can help in the subject-object identification [SYNTAX 2.2.1.1]; anaphoric references can be used as a diagnostic test in the aforementioned distinction [SYNTAX 2.2.1.2]; in some cases, pronoun copying strategies can also function as tools in the distinction of syntactic roles [SYNTAX 2.2.1.3]; and finally, null pronouns [SYNTAX 2.2.1.4] can be helpful diagnostic tools in identifying these two grammatical functions.

2.2.1.1 Specific position(s) for subject and object

Despite the relatively flexible word order position in LIS, basic word order represents a useful tool in the analysis of subject and object grammatical functions. The unmarked word order in the varieties of LIS under consideration is SOV, namely subject-object-verb [SYNTAX 2.3].

However, variations in the basic word order are possible in LIS, for example in a topicalisation the object can be moved in front of the subject OSV [PRAGMATICS 4.2]. In this case, the topicalised constituent is more likely to be accompanied by specific non-manuals, such as raised eyebrows, squint eyes and head forward, and is more likely to be separated from the remaining part of the sentence by prosodic markers as head nod and an eye blink (glossed 'top' in the example below).

top
HOUSE_{a} GIANNI_{b} $_{3b}\text{BUY}_{3a}$
'The house, Gianni buys it.'

Furthermore, the topicalisation of the object demonstrates that the grammatical functions of subject and object can also be distinguished from the pragmatic relationships like topic or focus. Although it is common for the subject to be the topic, the previous example shows that the object (HOUSE) can be the topic of the sentence.

If the subject is a pronoun, it may appear in postverbal position [LEXICON 3.7]; [SYNTAX 2.2.1.3], as shown in the example below displaying an OVS order with a topicalised object.

top
BOOK_{a} $_{3a}\text{BUY}_{3b}$ IX_{3b}
'The book, he bought (it).'

Agreement verbs and aspectual marking, plus the use of classifiers, may permit to place the object before the subject, without triggering any specific non-manual markers [LEXICON 3.3.2]; [MORPHOLOGY 3.3].

Subject and object are not only identifiable by their position in basic word order, they also differ hierarchically, namely the object forms a unit with the verb (called verb phrase or VP) that excludes the subject. Evidence that verb plus object form a unit that excludes the subject comes from several syntactic phenomena. One of these phenomena is again topicalization, which proves that the entire VP can be displaced to a position in front of the subject, as shown in the example below.

top
BOOK$_a$ READ$_a$ GIANNI$_b$ LIKE
'Reading the book, Gianni likes it.'

A further piece of evidence for VP being a constituent comes from negation. In LIS, negation is generally produced through negative manual signs and non-manual markers spreading over them [SYNTAX 3.5]. However, in some areas (especially in the central and south regions of Italy) it is possible to negate a sentence only through the negative non-manual markers. In the absence of a manual negative marker, the negative non-manuals (headshake) must spread over the entire VP composed of verb and object, and not only over a subpart of it. This indicates that the argument over which the neg non-manuals spread is the object. The example below demonstrates this condition.

neg
GIANNI CHOCOLATE EAT
'Gianni does not eat chocolate.'

The indivisibility of verb and object is also attested in the case of the insertion of adverbs. Although these adverbs have quite flexible positions, they cannot break up the VP constituent. And they can only appear before or after it, as shown in (a) and (b) below.

a. GIANNI YESTERDAY APPLE EAT
'Gianni, yesterday, ate an apple.'

b. GIANNI APPLE EAT YESTERDAY
'Gianni ate an apple, yesterday.'

2.2.1.2 Special anaphoric properties for subject and object

Anaphors are linguistic deficient entities which need to refer to a previously introduced category [PRAGMATICS 2]. A reflexive pronoun [LEXICON 3.7.4] is a type of anaphor, which must have an antecedent in its own clause. This holds in LIS and in many other signed and spoken languages. In the example below, the reflexive pronoun SELF refers to the subject BOB.

BOB SELF LIKE
'Bob likes himself.'

The reflexive pronoun and its antecedent must be in the same clause. In example below, the antecedent of the reflexive pronoun SELF is MARIA, the subject of the verb LOVE within the same (object) clause, not GIANNI which is the subject of the verb SAY within the main clause.

GIANNI$_a$ SAY MARIA$_b$ IX$_b$ LOVE ONLY SELF
'Gianni said that Maria loves only himself.'

Furthermore, a reflexive object can refer to a previous subject (as in the example below), but not the other way around.

IX$_3$ SELF LIKE
'He likes himself.'

The opposite pattern is shown by personal pronouns. In LIS, a pronoun in object position cannot take the subject of its own clause as its antecedent [PRAGMATICS 2]. In the example below the pronominal object IX$_3$ cannot refer to MARIA, but it must refer to another person.

MARIA$_a$ CRITICISE IX$_{3b}$
'Maria criticises her/him.'

2.2.1.3 Strategies of pronoun copying for subject and object

In LIS, a third strategy can be used to distinguish the subject from the object, namely pronoun copy [LEXICON 3.7.2]. In LIS a pronoun in sentence final position may refer back to the subject (especially if the subject precedes the object).

CHILD$_a$ PIZZA EAT DONE IX$_{3a}$
'The child ate the pizza, she.'

The pronoun copying the subject can also be accompanied by non-manuals, but it does not need to. However, a light movement of the body appears, opposite to the signing space where the subject has been located.

The subject which is copied by the sentence final pronoun can be a full noun phrase, as in the example above, or a pronoun as shown in (a) below. The example in (b) below is different because there is no overt subject in the initial position, so no copying in the literal sense. However, if we consider that LIS admits null subjects [SYNTAX 2.2.1.4; 2.4.1], we can hypothesise that the pronoun in final position in (b) is a copy of the null subject.

a. IX_3 PIZZA EAT DONE IX_3
'He has eaten the pizza, he.'

b. PIZZA WANT IX_3
'He likes pizza.'

Although pronoun copying seems to mostly refer to subjects, in some special sentences the object can be copied as well. This can happen if the object is fronted, as in the example below.

top
CHOCOLATE_a GIANNI_{3b} $_{3b}\text{HATE}_{3a}$ IX_{3a}
'Chocolate, Gianni hates it.'

This syntactic flexibility allows us to suppose that copy pronouns pragmatically refer to topicalised elements [PRAGMATICS 4.2] in LIS, regardless of their syntactic role. This diagnostic should therefore be applied with caution if used to detect the syntactic function of an element in the sentence.

2.2.1.4 Null arguments for subject and object

The fourth strategy for distinguishing syntactical subjects and objects in LIS is the analysis of null arguments [SYNTAX 2.1.2]. Very commonly in LIS, subject and object can be omitted thanks to the context, which plays an important role in allowing arguments to be unexpressed. The example below shows one such case, where both subject and object can be omitted.

Context: A person known by the signer is mentioned in the discourse.

BE_FAMILIAR

'(I) know (her).'

In LIS, the subject is more easily omitted than object. Especially when subjects are also topics and are easily accessible to the interlocutor, they seem likely to be omitted. Moreover, the distribution of null arguments in LIS seem to correlate with many other linguistic factors, such as the presence of agreement verbs and verb classifiers. In the presence of these elements, arguments can easily be left unexpressed in LIS. This happens in the example below, where the use of the classifier V for the predicative classifier meaning '(to) walk' is automatically interpreted as referred to GIANNI, not to his dog. So, the name GIANNI does not need to be repeated.

rs: dog

GIANNI HOUSE ARRIVE. DOG CL(G): 'wag_tail' CL(V): 'walk' STROKE

'Gianni arrives at home. His dog wags his tail, so he (Gianni) walks toward him and pets him.'

2.2.2 Other grammatical functions: arguments vs. adjunct

To be developed.

2.2.3 Types of adjuncts

To be developed.

2.3 Word order

Studies on word order concentrate on the order of the constituents bearing the grammatical function of subject and object with respect to the verb.

This section is devoted to describing not only the order of subject, verb and object, but also adverbial expressions and functional signs like temporal and aspectual auxiliaries, agreement markers, modal verbs, negation signs and subordinating conjunctions.

2.3.1 Identification of the basic order of constituents in the main declarative clause

The reader will find a description of the unmarked order of subject, object and verb in LIS declarative clauses. We will also describe the position of other crucial elements appearing in LIS clauses, such as auxiliaries, modals, negation, adverbs and adjuncts.

2.3.1.1 Order of subject, object and verb

In order to observe the most natural order of subject, object and verb in LIS main declarative clauses, we need to look at sentences with a transitive predicate. The most natural order of constituents in LIS clauses is: subject, encoding the agent argument, object, encoding the theme argument, and verb. The order SOV in LIS holds with both plain and agreement verbs, as shown in the following (a) and (b) examples respectively.

a. CAT RED MEAT EAT

'The red cat eats the meat.'

b. DAVIDE$_a$ MARIA$_b$ $_a$HELP$_b$

'Davide helps Maria.'

As expected, the order between the subject and verb in sentences with an intransitive predicate is SV, regardless of the thematic role of the subject: an agent (a), as with unergative verbs [SYNTAX 2.1.1.2], or a theme (b), as with unaccusative verbs [SYNTAX 2.1.1.2].

a. LUCA RUN

'Luca runs.'

b. LUCA GO_OUT

'Luca exits.'

In LIS, pronominal subjects and overt noun phrase subjects occupy the same position in the clause.

a. CAT RED MEAT EAT
'The red cat eats meat.'

b. IX$_{3pl}$ MEAT EAT
'They eat meat.'

Next to the SOV order, the SVO order is accepted in sentences that possess a structurally heavy object, like in the following examples.

a. YESTERDAY IX$_1$ MEET MAN IX$_a$ HAT CL(L): 'big_hat' PLUS COAT COLOUR GREY
'Yesterday I met a man with a big hat and a grey coat.'

b. YESTERDAY IX$_1$ MEET WOMAN FAT$_a$ MAN TALL$_b$ CHILD$_c$ CAPRICIOUS$_c$
'Yesterday I met a robust woman, a tall man, and a capricious child.'

c. YESTERDAY IX$_1$ EAT PIZZA CL(5): 'all_pizza' CHEESE PLUS MUSHROOM
'Yesterday I ate a pizza with cheese and mushrooms.'

We should finally point out that, although LIS is a relatively consistent language, as far as word order is concerned, some variation in the order of the main constituents in LIS clauses has been observed. The sociolinguistic factor influencing the order of subject, object and verb in LIS is the geographical origin of signers: while signers from Northern Italy seem to slightly prefer the VO order, signers living in the Central and Southern Italy seem to prefer the OV order.

2.3.1.2 Order of auxiliaries (i.e. agreement, tense and aspectual markers) with respect to the verb

In LIS, morphosyntactic features of agreement, tense and aspect can be conveyed through both manual and non-manual markers occurring with the lexical verb [LEXICON 3.3].

As for agreement markers, plain verbs can realize agreement with their arguments through an agreement marker that can be considered an auxiliary. The agreement marker AUX [LEXICON 3.3.4] follows the verb.

GIANNI$_a$ PIETRO$_b$ BE_FAMILIAR $_a$AUX$_b$
'Gianni knows Pietro.' (based on Bertone 2011, 159)

Another auxiliary is a causative auxiliary, GIVE_AUX [LEXICON 3.3.4] used for causative psychological predicates with a sign expressing a psychological state, like fear. When the experiencer object (first person singular in the example below) is not overtly expressed, the causative auxiliary GIVE_AUX follows the subject.

EARTHQUAKE GIVE$_1$_AUX FEAR
'Earthquakes scare me.'

When the experiencer object is expressed, the causative auxiliary GIVE_AUX may either precede (a) or follow it (b), as shown in the examples below.

a. EARTHQUAKE GIVE$_3$_AUX MARIA FEAR

b. EARTHQUAKE MARIA IX$_a$ GIVE$_{3a}$_AUX FEAR
'Earthquakes scare Maria.'

As for tense [LEXICON 3.3.1], it can be conveyed through temporal adverbials usually appearing at the beginning of the sentence.

TIME PAST GIANNI HOUSE BUY
'Some time ago Gianni bought a house.' (based on Zucchi 2009, 100)

The temporal anchoring of events may also be inferred from aspectual markers: DONE expresses a completed event (a) and TO_BE_DONE conveys a non-completed event that is likely to happen (b) [LEXICON 3.3.2]. DONE and TO_BE_DONE always follow the main verb defining the event. The sentences containing the lexical markers DONE and TO_BE_DONE favour the OV order.

a. IX$_1$ DOG CL(closed G): 'take_dog_for_a_walk' DONE
'I took the dog out for a walk.'

b. IX$_1$ DOG CL(closed G): 'take_dog_for_a_walk' TO_BE_DONE
'I will take the dog out for a walk.'

Note that the sign DONE cannot occur with any element of negation.

The negative counterpart of the completive aspectual marker DONE in LIS is the negative lexical sign NOT_YET ('not yet') [SYNTAX 1.5]. The sign NOT_YET includes the presupposition that the event is expected to occur in the future and occurs after the verb. An example can be seen below.

neg
WAITER PIZZA CL(curved open L): 'bring_pizza' NOT_YET
'The waiter hasn't brought the pizza yet.'

In order to deliver the imperfective aspect [MORPHOLOGY 3.3.1], LIS employs lexical adverbials after the verb (a) and manual modifications of the verb sign, where the verb is repeated several times (b). Examples are provided below.

a. IX$_1$ COMPANY INSIDE WORK DURATION
'I've been working in the company for a long time.'

b. YESTERDAY IX$_1$ CAKE PREPARE MOMENT PE IX$_a$ CHILD$_a$ CRY++
'Yesterday while I was preparing a cake, the child was crying.'

Habitual aspect [MORPHOLOGY 3.3.1.1] is conveyed through time adverbials placed at the beginning of the sentence.

EVERY_DAY CHILD CRY
'The child cries every day.' (based on Bertone 2011, 222)

Continuative aspect is not conveyed through free markers, rather, the verbal root is modified [MORPHOLOGY 3.3.1.2]. The verb sign is articulated with a longer duration (a) or it is repeated (b), with a little difference in meaning: the longer articulation indicates that the event lasts indefinitely in time, repetition instead indicates that the event is repeated an indefinite number of times. The verb can be produced with specific non-manual markings, consisting in puffed cheeks (pc) or head-nod (hn) conveying the indefinite duration of the event.

hn
a. G-I-A-N-N-I WINDOW LOOK$_{[prolonged]}$
'Gianni is looking out of the window.'

pc
b. STUDY++
'(S/he) studies for an indefinite period of time.'

2.3.1.3 Order of modals with respect to the verb

LIS displays modals meaning ability (BE_ABLE), permission (CAN), obligation/necessity (MUST), and intention/volition (WANT) expressing the speaker's attitude towards the necessity or possibility of an act or event [LEXICON 3.3.3.1] and [MORPHOLOGY 3.4.1]. The natural position of modal signs in LIS is after the verb, as shown in the example (a) for CAN, (b) for MUST, (c) for WANT, and (d) for BE_ABLE.

a. DANIELE UNIVERSITY ATTEND CAN
'Daniele can attend university.'

b. TOMORROW IX_1 POLICE GO MUST
'Tomorrow I must go to the police.'

c. EVENING IX_1 PIZZA EAT WANT
'Tonight I want to eat a pizza.'

d. CHILD SKI BE_ABLE
'The child is able to ski.'

We should point out that, while the post-verbal position of the modals CAN and BE_ABLE is more rigid, the modals MUST and WANT can alternatively be produced before the verb, as shown in the examples below.

a. EVENING HISTORY IX_1 MUST STUDY
'I must study history tonight.'

b. $YOUNG_b$ WOMAN DRESS WHITE IX_a WANT $_aBUY_b$
'The girl wants to buy a white dress.'

2.3.1.4 Order of negation with respect to verb, modals and auxiliaries

In a LIS sentence displaying an unmarked word order, negation follows the verb, as well as modals and aspectual markers, regardless of the type of negative element employed, such as negative particles, negative words and negative adverbials [SYNTAX 1.5.1.1].

The VO order is not accepted by signers in sentences that contain a negative sign. Here we have an example of a negative sentence displaying the SOV order.

neg
IX_1 BOOK BUY NOT
'I don't buy the book.'

The following are examples of sentences with different types of modals and negative elements.

neg
a. HOSPITAL ACCOMPANY CAN NOBODY
'Nobody can accompany (her) to the hospital.'

neg
b. IX_1 FILM IX_1 SEE WANT NOT
'I don't want to watch the/a film.'

neg
c. GIANNI EXIT MUST NOT
'Gianni must not go out.'

neg
d. GIANNI SMOKE BE_ABLE NOT
'Gianni is not allowed to smoke.'

As can be seen, negation follows the modal. When the modal incorporates the negative sign, the sign that expresses both the modal and negation is at the end of the sentence, as in the following example.

neg
GIANNI SMOKE CAN^NOT
'Gianni cannot smoke.' (based on Geraci 2006b, 103)

Despite the fact that negative quantifiers are regularly right-dislocated, some signers do allow them to occur in preverbal position according to their argument position: in (a) the sign NOBODY is the sentence subject, therefore it occurs in subject position, in (b) the same sign is the sentence object and it appears in object position.

neg
a. NOBODY CONTRACT PUT_SIGNATURE
'Nobody signed the contract.'
(recreated from Cecchetto, Geraci, Zucchi 2009, 287)

neg
b. $GIANNI_a$ $NOBODY_b$ $_aHELP_b$
'Gianni did not help anybody.'
(Cecchetto, Geraci, Zucchi 2009, 287)

It is important to notice the spreading domain of the negative non-manual marking in the two examples above: they start being articulated when the negative quantifier is signed (in argument position)

and spread over the manual material following it.

As illustrated in [SYNTAX 2.3.1.2], the agreement marker, that can be considered an auxiliary, follows the verb.

GIANNI$_a$ PIETRO$_b$ BE_FAMILIAR $_a$AUX$_b$

'Gianni knows Pietro.'

When negating the previous sentence, our informants produce the auxiliary either before the verb (a) or after the negative sign (b).

a. GIANNI$_a$ PIETRO$_b$ $_a$AUX$_b$ BE_FAMILIAR NOT
neg
'Gianni doesn't know Pietro.'

b. GIANNI$_a$ PIETRO$_b$ BE_FAMILIAR NOT $_a$AUX$_b$
neg
'Gianni doesn't know Pietro.'

The sign MUST can be used both as a modal and as an aspectual marker expressing a non-completed event. In this second case, we gloss it as TO_BE_DONE and it is produced with a variant. In both cases, it follows the sentence verb.

a. IX$_1$ LEAVE MUST
'I must leave.'

b. IX$_1$ LEAVE TO_BE_DONE
'I will leave.'

When a negative sign is added, it follows the modal/tense marker.

a. IX$_1$ COME MUST NOT
neg
'I must not come.'

b. IX$_1$ COME TO_BE_DONE NOT
neg
'I won't come.'

2.3.1.5 Order of arguments of ditransitive verbs

LIS ditransitive verbs [SYNTAX 2.1.1.1] select for three arguments. They are syntactically realized as subject, direct object and indirect object respectively.

Ditransitive predicates in LIS are: agreement verbs with two points of articulation in the neutral space, like DONATE (a) and agreement verbs whose starting point is on the signer's body, like SAY (b).

a. PIETRO$_a$ CHILD$_b$ IX$_b$ BOOK $_a$DONATE$_b$
'The woman donates a book to the child.'

b. L-U-C-A P-A-O-L-O$_a$ LIE SAY$_a$
'Luca tells a lie to Paolo.'

2.3.1.6 Position for different types of adverbs and adjuncts

In LIS, each type of adverbs may be associated to one unmarked position.

As previously showed [SYNTAX 2.3.1.2], the unmarked position of temporal adverbs in LIS is at the beginning of the sentence, as illustrated in the following example.

TODAY DAVIDE COME
'Today Davide is coming.' (based on Lerose 2012, 336)

Adverbs of place usually follow the verb.

DAVIDE EAT OUTSIDE
'Davide eats out.' (based on Lerose 2012, 333)

As for frequency adverbs, they usually follow the verb too, as in the example:

IX$_1$ VENICE GO OFTEN
'I often go to Venice.'

The order between adverbs of place and frequency adverbs does not seem to be fixed, as shown in the following examples.

a. DAVIDE EAT NUMEROUS OUTSIDE
'Davide often eats out.'

b. DAVIDE EAT OUTSIDE NUMEROUS
'Davide often eats out.'

In place of frequency adverbial signs, as in the case of the adverbial ALWAYS, adverbial information can be alternatively expressed through the repetition of the sign for the verb:

EVENING DAVIDE GO_OUT++
'In the evening, Davide always goes out.'

Sentential adverbs can occupy different positions in the sentence without changing the meaning of the sentence itself, as can be seen in the following examples.

a. SURELY GIANNI COME
'Gianni is coming surely.' (based on Lerose 2012, 344)

b. GIANNI COME SURELY
'Gianni is coming surely.'

c. GIANNI SURELY COME
'Gianni is coming surely.'

In LIS, adverbs of manner can be produced as autonomous signs following the verb, as in (a) below, or through non-manual markers produced simultaneously to the verbal sign, as in (b).

a. SARA READ QUICKLY
'Sara reads quickly.'
(based on Lerose 2012, 327)

b. SARA BOOK $\underset{\text{blow}}{\text{READ}}_{\text{[quickly]}}$
'Sara quickly reads a book.' (based on Lerose 2012, 328)

Frequency adverbs precede adverbs of manner, as can be seen in the following example.

ANNA BEHAVE ALWAYS KINDLY
'Anna always behaves kindly.'

Specific non-manual markers may be added if there is a change in the order of frequency and manner adverbs, indicating that it is a marked order.

re
ANNA BEHAVE KINDLY ALWAYS
'Anna always behaves kindly.'

Quantitative adverbs indicate an indefinite quantity that refers to the action performed by the verb. They are preferably expressed through non-manual markers and through the alteration of the movement of the verbal sign (a), even if manual adverbial signs conveying the same meaning are available and may be used as an alternative strategy (b).

a. DAVIDE STUDY ++
'Davide studies a lot.' (based on Lerose 2012, 341)

b. DAVIDE STUDY VERY
'Davide studies a lot.'

As for adjuncts, their position in the sentence is flexible. They can be produced at the end of the clause, as shown in (a), at the beginning of the clause, as in (b), or between the subject and the object, as in (c) for the locative adjunct OFFICE INSIDE.

a. MARIO CONTRACT PUT_SIGNATURE OFFICE INSIDE
'Mario signs the contract in the office.'

b. OFFICE INSIDE MARIO CONTRACT PUT_SIGNATURE
'In the office Mario signs the contract.'

c. MARIO OFFICE INSIDE CONTRACT PUT_SIGNATURE
'Mario in the office signs the contract.'

2.3.2 Basic order of constituents in other clauses

In this section, we will briefly analyse the order of constituent in clauses that are different from declaratives.

2.3.2.1 Basic order in the different types of sentence

In LIS polar questions, the order of constituents is the same as in declarative sentences. Polar questions only differ from declaratives for the presence of specific non-manuals spreading over the whole sentence [SYNTAX 1.2.1.2]. An example of a polar question is provided below.

y/n
IX$_2$ LIS BE_FAMILIAR
'Do you know LIS?'

In LIS, *wh*-questions [SYNTAX 1.2.3], on the other hand, the argument or adjunct constituent represented by the *wh*-phrase, is produced at the end of the sentence, after the verb, aspectual marker, modals and negation, as in the following examples.

wh
CONTRACT PUT_SIGNATURE WHO
'Who signed the contract?'

The following is an example of a *wh*-question displaying a sign of negation.

wh
IX$_2$ UNDERSTAND NOT WHAT
'What don't you get?'

The following are three examples of *wh*-questions containing a modal sign.

a. wh
IX$_2$ BUY MUST Q$_{artichoke}$
'What do you have to buy?'

b. wh
IX$_2$ EAT CAN Q$_{artichoke}$
'What can you eat?'

c. wh
EVENING TODAY IX$_2$ FILM SEE WANT Q$_{artichoke}$
'What film do you want to watch this evening?'

In the following sentence we can find an example showing the position of a *wh*-element with respect to the aspectual marker DONE.

wh
IX$_2$ BOOK READ DONE WHICH

'Which book did you read?'

The following example shows the distribution of the *wh*-element and the aspectual marker TO_BE_DONE.

wh
IX$_2$ TRIP TO_BE_DONE WHERE

'Where will you be travelling?'

As for exclamative sentences [SYNTAX 1.4], in LIS the order is the same that we find in declarative sentences. The only difference lies in different non-manual marking which, in the following sentence, is raised eyebrows.

re
GIANNI ARRIVE

'Gianni has arrived!'

As far as imperative sentences are concerned [SYNTAX 1.3], positive imperative sentences are characterized by a specific sign, glossed PALM_UP. This sign, which can be considered a manual marker of imperative sentences, immediately follows the verb. PALM_UP can occur with many different uses within the imperative modality. In this sense, it is not a pragmatic marker of command, but a grammatical marker of the imperative verb. PALM_UP occurs in the final position of the imperative sentence.

fe
$_2$TAKE$_3$ PALM_UP

'Take it!'

Just like PALM_UP, another sign occupies the postverbal position in imperative sentences: the sign MOVIMP. MOVIMP occurs in LIS imperative sentences when the addressee must move to a different position to obey a command. The signs PALM_UP and MOVIMP can never co-occur in the same imperative sentence.

fe
SLEEP MOVIMP

'Go to sleep!'

In both types of imperatives, null subjects seem to be the preferred option.

There are specific non-manual markers for the various types of imperative sentences. The spreading domain of non-manual markers refers to their extension over the manual signs they co-occur with. The non-manual markers for the imperatives are not limited to the signs PALM_UP or MOVIMP (when present), but extend over the verb and its arguments.

As for negative orders, there are differences with respect to positive imperatives. Negative imperatives employ a manual sign for negation, very similar to the sign NOT used in negative sentences, but different in its movement and non-manual marking [SYNTAX 1.3.6]. In negative imperatives, the negative sign occupies a post-verbal position. Manual signs conveying the imperative, such as the PALM_UP sign or the MOVIMP sign are incompatible with negation. An example of a negative imperative is the following.

hs
fe
EAT NO
'Don't eat!'

2.3.2.2 Basic order in the different types of subordinate clauses

Two types of clauses can be embedded: declarative [SYNTAX 1.1] and interrogative clauses [SYNTAX 1.2] (also called indirect questions).

A declarative sentence can be embedded under another declarative sentence. In this case, the order of the matrix clause is SVO (a) or OSV (b) [SYNTAX 3.3.2] More generally a finite object clause normally precedes or follows the matrix clause [SYNTAX 3.3.2.2].

a. GIANNI THINK MARIA CHOCOLATE BUY
'Gianni thinks Maria bought chocolate.'

b. MARIA CHOCOLATE BUY GIANNI THINK
'Gianni thinks Maria bought chocolate.'

As to subject clauses, there does not seem to be a clear preference for the initial or final position. [SYNTAX 3.3.1.1] The word order within object and subject clauses tends to remain the same as that found in declarative sentences.

Indirect questions [SYNTAX 1.2] follow the interrogative verb, both when they are polar (a), and when they are *wh*-questions (b), as can be seen in the two examples below.

y/n
a. IX$_1$ ASK$_1$ GIANNI SICK
'I wonder whether Gianni is sick.'

wh
b. IX$_3$ $_3$ASK$_1$ IX$_1$ BUY Q$_{artichoke}$
'He asked me what I bought.'

2.3.3 Deviations from the basic order of constituents

The reader will find a description of deviations from the basic order of constituents in [PRAGMATICS 4].

2.3.3.1 List of attested and unattested permutations

To be developed.

2.3.3.2 Non-manuals accompanying the deviations from the basic word order

To be developed.

2.3.3.3 Specific order for topicalized elements

To be developed.

2.3.3.4 Specific order for focused elements

To be developed.

2.3.3.5 Word order variations according to the different types of verbs (plain, agreeing)

The unmarked SOV order of subject, object and verb observed in [SYNTAX 2.3.1.1] is shared by both agreeing verbs (a) and plain verbs (b) in LIS.

a. IX$_1$ STORY $_1$TELL$_2$
'I tell you a story.'

b. CAT RED MEAT EAT
'The red cat eats meat.'

Although sharing the same word order, sentences with agreeing verbs and plain verbs may differ in the frequency of the SVO order. More specifically, with plain reversible verbs where both arguments may be promoted to be the sentence subject, the SVO order is also attested probably to avoid ambiguity in the interpretation of the syntactic roles of the predicate arguments, as shown in (a) and (b) below.

a. ANNA LAURA THINK
'Anna thinks of Laura.'

b. ANNA THINK LAURA
'Anna thinks of Laura.'

In the case of some ditransitive verbs, where a locative constituent is involved, the order of the arguments in the sentence can be peculiar, since the locative constituent is in pre-verbal position. An example is provided by the spatial ditransitive verb CL(flat open 5): 'put_book_on_shelf', where the locative argument follows the object and precedes the verb.

TEACHER BOOK SHELF++ CL(flat open 5): 'put_book_on_shelf'
'The teacher puts the book on one of the shelves.'

2.3.3.6 Word order variations according to the different types of predicates (reversible/irreversible)

Reversible sentences are those in which the permutation of the two arguments changes the meaning of the sentence by inverting the attribution of the semantic roles. For example, the sentence 'The woman combs the child', can be can be changed into the sentence 'The child combs the woman' through the permutation of the two noun phrases.

Irreversible sentences are those in which permutation is not possible due to the meaning of the predicate and/or the arguments. For example, in the sentence 'The man touches the mountain' such permutation is not possible due to the inanimate feature of the object 'mountain'; while in the sentence 'The man cooks the egg' the permutation of the sentence arguments is blocked by the semantics of the English verb 'cook' which typically implies a human subject and a non-human object.

If the predicate is reversible, namely the two characters can perform the action on each other, word order may be the only clue to understand who is the agent and who is the theme. If the predicate is

irreversible, word order is less crucial in determining the role of the arguments in the sentence.

While the SVO order is preferred in LIS in reversible sentences displaying plain verbs, the SOV order is preferred with irreversible predicates, or with reversible predicates when verbal inflection, the use of space and the use of classifiers, clarifies the syntactic roles of the predicate arguments. An example of a sentence displaying an irreversible verb is provided in (a), while (b) illustrates an example of a reversible sentence displaying the SVO order.

a. WOMAN MEAT EAT
'The woman eats the meat.'

b. DOG_{a} $_{a}\text{BITE}_{b}$ CAT_{b}
'The dog bites the cat.'

2.4 Null arguments

A null argument consists in the omission of an argument of the verb. This phenomenon is quite frequently observed in LIS discourse. The arguments that may remain unexpressed are the subject, the object, the indirect object, and locative arguments.

To illustrate, we show below an example containing two lexical verbs, TAKE and ACCOMPANY. Both of them are spatially modified to mark their arguments: TAKE is a backward agreeing verb [LEXICON 3.2.2] showing agreement from the object to the subject, whereas ACCOMPANY is a spatial verb [LEXICON 3.2.3] showing overt agreement from one location to another. If these four arguments can be implicitly understood from the context, they may be all omitted. For instance, in previous discourse, the signer might have provided the following details: his son is very busy with all his activities, he is at school until 3 pm and at 3:30 pm he has to be at the dance hall for his hip hop class. In doing so, the signs SON, SCHOOL, and DANCE_HALL are associated with precise loci in the signing space. In the example below, the pre-established loci help the addressee retrieve the omitted arguments.

$_{1}\text{TAKE}_{3}$ $_{a}\text{ACCOMPANY}_{b}$ DONE
'(I) picked (him) up and took (him from school to the gym).'

As similarly observed in other null subject languages, meteorological predicates [SYNTAX 2.1.1.4] in LIS do not require an overt subject.

TODAY RAIN
'Today (it) rains.'

Overall, licensing of null arguments in LIS may be influenced by some linguistic and extra-linguistic factors, which will be discussed in the following sections.

2.4.1 Subject and object null arguments

LIS is a null argument language and allows both the subject and the object to remain unexpressed.

2.4.1.1 Null subjects

Null subjects in LIS may occur both with plain and agreement verbs. The example below shows the possibility to omit the subject with a plain verb, such as EAT. In this case, the addressee learnt from previous discourse that a student has studied a lot for her test, but she thinks she won't pass it. At the canteen, she feels very worried about the test and all her thought is bent on it.

EAT NEG_S NERVOUS
'(She) was too nervous to eat.'

Since it can be recovered from the previous context, the subject argument STUDENT can remain unexpressed.

The example below shows subject omission with a backward agreement verb, TAKE. According to previous context, Daniela is attending her history class, but she is not very interested in the topic.

SMARTPHONE$_{a\ 3}$TAKE$_{a}$ SCROLL
'(Daniela) took her smartphone and scrolled the screen.'

The subject argument DANIELA can be omitted since it is salient in the discourse.

Recall that agreement in LIS can be optionally marked by non-manuals co-occurring with all verbal classes (i.e. plain, agreement, and spatial verbs). In particular, the head may tilt toward the location associated with the subject and the eye gaze may be directed toward the location associated with the object. If produced, these non-manual markers co-occur with the manual verb [SYNTAX 2.1.2.3.2]. Contrary

to what happens in other sign languages, in LIS null subjects are allowed regardless of whether agreement is marked non-manually or not. In the two examples discussed in this section, non-manual subject agreement (i.e. head tilt) is absent.

2.4.1.2 Null objects

In addition to subjects, LIS also allows objects to remain unexpressed. Null objects may appear with both plain and agreement verbs. The example below contains a transitive plain verb (FORGET) and it is uttered after a dialogue about the importance of wearing rain boots when walking in Venice with high tide.

STUDENT FORGET
'The student forgot (them).'

Since the object argument (BOOT) is salient in the discourse, it can be omitted.

The possibility to omit the object with agreement verbs is exemplified below with the transitive agreement verb HELP. According to previous context, a student has a hard time focusing and learning new concepts. He is thus struggling to study for his next test.

MARIA $_{3a}$HELP$_{3b}$
'Maria helps (him).'

In LIS, null objects are allowed regardless of whether agreement is marked non-manually or not. In the two examples discussed in this section, non-manual object agreement (i.e. eye-gaze) is absent.

2.4.2 Types of verbs that can license null subjects

As shown above, null subjects in LIS can occur both with plain and agreement verbs [SYNTAX 2.4.1.1]. However, according to corpus data, subjects remain unexpressed more frequently with agreement verbs than with plain verbs. This behaviour has been observed in other sign languages as well.

Moreover, null subjects are likely to occur with predicate classifiers [MORPHOLOGY 5.1]. Since the classifier handshape may provide information about the type, size, shape, movement, and location of the relevant referent, it might be easier for the addressee to retrieve the omitted referent. For example, if the signer is talking about the rela-

tionship between a friend of hers and her dog, a predicate classifier like the one shown below is automatically associated with the only salient two-legged entity, the signer's friend. Under these circumstances, the subject may be omitted.

CL(V): 'walk'
'(She) was walking.'

2.4.3 Null subjects in main clauses

In this section, we focus on subject omission in main clauses. In corpus data, it has been observed that there is a strong topicality effect on main clauses in LIS. This means that if a referent has already been introduced in the discourse and thus has become salient, it is likely that it is dropped in the following main clause [PRAGMATICS 4.2]. For example, a signer is waiting for Anna in the hall and mentions her to a colleague. In this case, Anna becomes salient in the discourse and thus holds as discourse antecedent. The colleague may produce a main clause as the one shown below leaving the subject unexpressed, as subject argument (ANNA) can be retrieved through the previous context.

GO_AWAY
'(Anna) left.'

2.4.4 Null arguments in embedded clauses

Null subjects in main clauses are mainly licensed by discourse topic. On the other hand, subject omission in embedded clauses appears to be regulated by another mechanism in that it is often licensed by sentence-mate antecedents. This means that if in the same sentence there is a co-referent DP preceding the embedded null subject, this holds as antecedent and licenses subject omission in the embedded clause. The example below shows such case.

PRESIDENT SAY VENICE$_a$ GO$_a$ TO_BE_DONE
'The president says that (he) will be going to Venice.'

The subject argument of the embedded verb GO is not expressed. However, it can be interpreted as co-referential with the sentence-mate antecedent PRESIDENT, which is the subject of the main clause.

In the example below, the embedded null subject is co-referential with the object of the main clause.

TEACHER CHILD++ FORCE GO_OUT
'The teacher forces the children to go out.'

The unexpressed subject of the embedded verb GO_OUT refers back to the object of the main clause (CHILD++). This sentence-mate antecedent thus licenses subject omission in the embedded clause.

Crucially, in both examples, the embedded null arguments can be correctly interpreted without relying on the previous context since they co-refer with an antecedent within the same sentence.

2.4.5 Pragmatic and semantic conditions licensing null arguments

As we saw in previous sections, null arguments in LIS are more frequent with agreement verbs, and they can be licensed by discourse antecedents or sentence-mate antecedents. Other possible licensors are topic phrase [PRAGMATICS 4.2] and role shift [SYNTAX 3.3.3].

If an argument is coreferential with the topic phrase produced at the beginning of the sentence, it may be dropped. Such case is exemplified below.

top ht$_a$
PIZZA PE IX$_1$ THINK IX$_a$ SISTER$_a$ IX$_b$ MOTHER$_b$ SUGGEST$_{3b}$ DONE
'That pizza, I think that my sister has already suggested (it) to our mother.'

The direct object of the embedded verb SUGGEST is omitted. This argument can be inferred, as it co-refers with the topic phrase PIZZA PE.

When role shift is used in signed discourse, the referent whose perspective is adopted can be inferred from the signer's non-manuals. In the example below, both the bodypart classifier referring to the tail and the co-articulated non-manuals (i.e. tongue protru-

sion and left body lean) referring to the denoted entity facilitate the identification of the relevant referent, a dog.

rs: dog
CL(G): 'wag_tail'
'(The dog) was wagging his tail in an excited way.'

The combination of predicate classifier and role shift helps the addressee to retrieve the subject, which therefore can be omitted.

2.4.6 Referential properties of null arguments

In some particular cases, the reference of null arguments in LIS may be ambiguous. One of such cases is verb phrase ellipsis [SYNTAX 2.5]. In the example below, the second clause lacks the predicate and the object. The reference of the omitted object (i.e. the car washed by Paolo) is ambiguous as it may refer either to Pietro's car or to Paolo's car.

PIETRO$_a$ CAR POSS$_{3a}$ WATER CL(closed G): 'wash_car' IX$_b$ PAOLO
IDENTICAL

'Pietro washed his car, Paolo did too.'

The ambiguous interpretation of the null object can be resolved through the context.

2.5 Clausal ellipsis

Ellipsis refers to the omission from a clause of one or more signs whose meaning can however be recovered from the context. There are numerous distinct types of ellipsis. One type of ellipsis is the omission of the verbal arguments [SYNTAX 2.4]. However here we are concerned with omission of an entire part of the clause. Omission typically requires that the meaning of the missing part be recoverable

from a nearby clause. For this reason, ellipsis is usually observed in clauses introduced by signs like AS_WELL (a), IDENTICAL (b), YES or NOT, which indicate that what is described in a given clause is similar or different from what is described in a previous clause.

a. AS_WELL
'As well'
(recreated from Cecchetto, Checchetto, Geraci, Santoro, Zucchi 2015, 220)

b. IDENTICAL
(recreated from Cecchetto, Checchetto, Geraci, Santoro, Zucchi 2015, 220)

For example, in the following sentence the signs VASE BREAK are not repeated in the second clause to avoid a redundancy, since they have been just uttered in the first sentence.

DINING_ROOM GIANNI VASE BREAK NOT. PIETRO YES
'Gianni did not break a vase in the dining room. Pietro did.'
(recreated from Cecchetto, Checchetto, Geraci, Santoro, Zucchi 2015, 220)

The part of the clause that can be omitted can vary. For example, the following two sentences are distinguished by how big the elliptical part is. In the sentence (a) the signs DINING_ROOM, VASE and BREAK are omitted, while in the sentence (b) only the signs VASE and BREAK are omitted.

a. DINING_ROOM GIANNI VASE BREAK. MARIA IDENTICAL
'Gianni broke a vase in the dining room and Maria did so too.' (recreated from Cecchetto, Checchetto, Geraci, Santoro, Zucchi 2015, 219)

b. DINING_ROOM GIANNI VASE BREAK. PIETRO IDENTICAL KITCHEN
'Gianni broke a vase in the dining room. Pietro did the same in the kitchen.' (recreated from Cecchetto, Checchetto, Geraci, Santoro, Zucchi 2015, 220)

Another example showing that the size of the ellipsis can vary is observed when a modal verb is present in the sentence. As shown in the next two sentences, a modal verb like OBLIGATION may optionally be omitted when the main verb and its object are omitted. In the first sentence ellipsis involves BOOK BUY OBLIGATION, while in the second sentence it involves only BOOK BUY.

a. GIANNI BOOK BUY OBLIGATION. MARIO IDENTICAL
'Gianni must buy a book. Maria too.' (recreated from Cecchetto, Checchetto, Geraci, Santoro, Zucchi 2015, 222)

b. GIANNI BOOK BUY OBLIGATION. MARIO OBLIGATION IDENTICAL
'Gianni must buy a book. Maria must also.' (recreated from Cecchetto, Checchetto, Geraci, Santoro, Zucchi 2015, 222)

Ellipsis seems to be relatively independent from the type of predicate that is omitted. In the example considered so far, the predicate that is (partially) omitted is agentive ('to break a vase', 'to buy a book', etc.). However, this is not necessary for ellipsis to be acceptable. In the following examples, the predicate is not agentive.

a. VASE CL(S): 'crack'. MUG IDENTICAL
'The vase is cracked. The mug too.' (recreated from Cecchetto, Checchetto, Geraci, Santoro, Zucchi 2015, 221)

b. TABLE RED. CHAIR IDENTICAL
'The table is red. The chair too.' (recreated from Cecchetto, Checchetto, Geraci, Santoro, Zucchi 2015, 221)

c. GIANNI DIE. PIERO IDENTICAL
'Gianni die. Piero did too.' (Cecchetto, Checchetto, Geraci, Santoro, Zucchi 2015, 221)

The following example shows that ellipsis is possible also when the predicate is a classifier predicate.

tp
WINDOW SASS(L): 'rectangular'. DOOR IDENTICAL
'The window is small and rectangular. The door too.' (recreated from Cecchetto, Checchetto, Geraci, Santoro, Zucchi 2015, 221)

The clause that contains ellipsis can be a subordinate clause, as shown by the following example.

GIANNI MARIA_{a} LOVE_{a}. IX_{3a} THINK PIETRO IDENTICAL
'Gianni loves Maria. She thinks that Pietro does too.' (recreated from Cecchetto, Checchetto, Geraci, Santoro, Zucchi 2015, 223)

In all the preceding examples, the clause from which the meaning of the missing predicate is recovered typically precedes the clause in which ellipsis takes place. However, it does not need to be so. In the following sentence, the clause from which the meaning is recovered *follows* the clause that contains ellipsis.

re
IF PIETRO NOT GIANNI GO
'If Pietro does not, Gianni will go.' (recreated from Cecchetto, Checchetto, Geraci, Santoro, Zucchi 2015, 224)

In all the examples considered so far, what is omitted is the entire predicate or a part of it. Subjects were never omitted. However, there is a specific syntactic context in which the subject can be omitted as well. This happens in embedded interrogatives, in which the interrogative clause is omitted except for the interrogative sign. One example is the following (the *wh*-sign precedes the matrix verb KNOW because, in this specific case, the (elliptical) indirect question precedes the main verb). The intended embedded interrogative is GIANNI MEET WHO but the signs GIANNI MEET are omitted.

GIANNI SOMEONE MEET BUT WHO IX_{1} KNOW^NOT
'Gianni met someone, but I do not know who.' (recreated from Cecchetto, Checchetto, Geraci, Santoro, Zucchi 2015, 225)

However, embedded interrogatives allow ellipsis of the verb and object as well. In the following example, the intended embedded interrogative is BOOK BUY WHO but the signs BOOK BUY are omitted.

SOMEONE BOOK BUY BUT WHO IX$_1$ KNOW NOT
'Someone bought a book, but I don't know who.'

2.6 Pronoun copying

In LIS, the pronoun copying phenomenon takes place when a pronoun refers to an argument realized within the same clause. The argument of a verb appears in its regular position, but it is copied by a pronominal index (IX), agreeing in space with the referred argument. IX most often appears in clause final position. The sentence below shows an example of pronoun copying.

IX$_3$ PIZZA EAT DONE IX$_3$
'He has eaten pizza, he.'

It is important to distinguish between pronoun copying and doubling. Doubling is observed when the same category is (partially) repeated twice in different positions in the sentence. Doubling does not need to involve IX. In LIS, for example, it is possible to have the repetition of the interrogative *wh*-elements, such as WHAT, WHO, HOW, WHERE [SYNTAX 1.2.3.7]. An example of this is shown in the sentence below.

wh
Q$_{artichoke}$ TODAY EAT Q$_{artichoke}$
'What do you eat today, what?'

When pronoun copying and *wh*-element take place in the same sentence, the pronoun copying (IX) seems to precede the final interrogative. The example below shows one of these situations.

wh
BOOK IX$_2$ WANT IX$_2$ WHICH
'Which book do you want, you?'

2.6.1 Personal pronoun copying

In the pronoun copying phenomenon, the copied argument can be realized as a full noun phrase (NP) [SYNTAX 4], as an overt pronoun [LEXICON 3.7], or as a null pronoun. In LIS, a commonly copied argument is the 'aboutness topic' [PRAGMATICS 4.2], namely the entity the sentence

is about. Since this type of topic usually coincides with the subject, often the pronoun copying refers to the subject of the clause. Example (a) shows the copy of a subject realized as a full NP, whereas in the example (b) the subject is realized as a pronoun.

a. CAT$_a$ IX$_a$ KIBBLE$_b$ LIKE IX$_{3a}$
'The cat likes the kibble, he.'

b. IX$_{3a}$ KIBBLE LIKE IX$_{3a}$
'He (the cat) likes the kibble, he.'

The pronoun may also refer to a subject which is otherwise left unexpressed, as shown in the sentence below.

CHOCOLATE IX$_b$ LIKE IX$_{3a}$
'(She) likes chocolate, she.'

In LIS, pronoun copying may also appear in other types of sentences, such as matrix polar interrogatives, as in the example below.

bl: a y/n
MOTHER FRUIT LIKE IX$_{3a}$
'Does mum like fruit?'

Copying pronouns may also appear in complex sentences, which contain an embedded clause. In this situation in LIS, the pronoun can refer to either the matrix or the embedded subject. In the following example, IX refers to the matrix subject MOTHER.

M-A-R-I-A FRUIT EAT MOST MUST MOTHER$_a$ SAY IX$_{3a}$
'My mum said that Maria should eat more fruit, she (my mum).'

In the following example, IX refers to the embedded subject SISTER.

FATHER$_a$ REMEMBER IX$_b$ SISTER$_b$ ADVENTURE LIKE IX$_{3b}$
'My father remembers that his sister loves adventures.'

What decides whether IX refers to the embedded or to the matrix subject seems to be its position: if IX immediately follows the matrix clause, it refers to the matrix subject, if IX immediately follows the embedded clause, it refers to the embedded subject.

Based on present knowledge, pronoun copying cannot be used as a specific tool for distinguishing subordination from coordination in

LIS. However, pronoun copying naturally occurs with subordination as in the following example (repeated from above).

M-A-R-I-A FRUIT EAT MOST MUST MOTHER$_a$ SAY IX$_{3a}$
'My mum said that Maria should eat more fruit, she (my mum).'

On the contrary, in the case of two or more coordinated sentences, the final copying pronoun is hardly found.

2.6.2 Syntactic properties of pronoun copying

In the following subsections, the syntactic properties of pronoun copying will be revealed, in particular the asymmetrical relationship between subject and object in pronoun copying [SYNTAX 2.6.2.1], and the syntactic position of the copying pronoun in a sentence [SYNTAX 2.6.2.2].

2.6.2.1 Possible subject-object asymmetry in pronoun copying

In LIS, a copying pronoun mostly refers to the subject of the clause. However, data show that pronoun copying can also be linked to objects, in a restricted set of cases. This happens when objects are fronted, as in (a), but the copying pronoun can also occasionally refer to an object which follows the subject, as in (b).

top
a. CHOCOLATE$_a$ GIANNI HATE IX$_{3a}$
'As for the chocolate, Gianni hates it.'

b. IX$_1$ CHOCOLATE$_a$ HATE IX$_{3a}$
'I hate chocolate.'

Examples like these allow us to assume that the pronoun copying phenomenon is not specifically linked to the syntactic roles of arguments in a sentence, but rather to their pragmatic roles, such as topic and focus [PRAGMATICS 4]; [SYNTAX 2.6.4].

2.6.2.2 Position of the copying pronoun

In LIS not all occurrences of pronouns referring to arguments of the same sentence can be considered as pronoun copying phenomena, but only those that appear in sentence-final position. The multiple occurrences of indexical pronouns in argument position should be considered as simple pronouns. Furthermore, the category of verbs can affect the occurrence of the pronoun copying phenomenon. With agreement verbs, subject pronoun copying may appear together with object pronoun copying, specifying the relationship expressed by the verb, as shown by the example below.

IX$_1$ GIANNI$_a$ BOOK $_1$CL(flat open 5): 'give_book'$_a$ DONE IX$_1$ IX$_{3a}$
'I gave the book to Gianni, I to him.'

2.6.3 Prosodic features of pronoun copying

The pronoun copy is generally unstressed, namely it is not accompanied by any specific kind of prosodic contour or intonational break [PHONOLOGY 2.2.3]. No pause occurs between the clause and the sentence final pronoun copy, and no intonational markers, such as blink or head nod, are registered before the realization of the pronoun copy.

2.6.4 Functions of pronoun copying

As anticipated previously [SYNTAX 2.6.2.1], the functions of pronoun copying are not fully related to syntax, but they seem to be correlated with various pragmatic functions, in particular with specific emphatic expressions [PRAGMATICS 4.2], as in the example below.

GIANNI$_a$ IX$_a$ REPORT DONE IX$_{3a}$
'Gianni said these words, he did.'

Further pragmatic functions which are conveyed by pronoun copying are focus [PRAGMATICS 4.1] and topics [PRAGMATICS 4.2]. The examples below present respectively pronoun copying referring to the corrective focus expressions CAT in (a) and pronoun copying which refers to the topic MOUSE in (b), and is defined as topic agreement.

foc
a. DOG_a NOT CAT_b $\text{MOUSE}_{c\ 3b}$CL(spread curved open 5): 'eat'$_{3c}$ DONE IX_{3b}

'It is the cat who ate the mouse, not the dog, he (the cat)!'

top
b. MOUSE_a $\text{CAT}_{b\ 3b}$CL(spread curved open 5): 'eat'$_{3a}$ DONE IX_{3a}
'As for the mouse, the cat ate it.'

One of the most common pragmatic functions conveyed by pronoun copying seems to be topic agreement. Indeed, topic pronoun copying can also be considered a familiar topic occurrence, since it most commonly has the function of further specifying some information already shared between the signer and his/her interlocutor.

top
MOTHER IX_a COOK ALWAYS FOR IX_{1pl} IX_{3a}
'(Our) mother, she always cooks for us, she.'

Information on Data and Consultants

The descriptions in this chapter are based partially on the references below and on the elicitation of new data. For information on data and consultants see the references. The video clips exemplifying the data have been produced by Deaf native-signing consultants.
As for [SYNTAX 2.1.3.2], it is important to keep in mind that, due to the lack of clear passive morphology, the identification of passive constructions in sign languages is difficult and still very controversial. In this section, the reader finds the description of some preliminary data collected on the functional equivalent of passive constructions in LIS.

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3 Coordination and subordination

Summary 3.1 Coordination of clauses. – 3.2 Subordination: distinctive properties. – 3.3 Argument clauses. – 3.4 Relative clauses. – 3.5 Adverbial clauses. – 3.6 Comparative clauses. – 3.7 Comparative correlatives.

In this chapter, we will consider complex sentences consisting of two clauses. The two clauses may be independent and coordinated, or one of them may be independent, while the other one is subordinate.

The main difference between coordination and subordination is that coordinated clauses have the same status, they are both independent clauses, while in complex sentences consisting of an independent and a subordinate clause, the two clauses are not on the same level: only the independent clause can be produced on its own, while the subordinate clause cannot.

3.1 Coordination of clauses

Coordination is the combination of at least two constituents [SYNTAX 2], often of the same syntactic category (such as noun phrases, verb phrases, or clauses) either through conjunction or juxtaposition. Conjunction refers to the connection of constituents through the use of conjunctions [LEXICON 3.9.1], juxtaposition refers to the coordination of constituents without the use of conjunctions, only by juxtaposing the two constituents one next to the other. This section illustrates how LIS coordinates clauses.

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3.1.1 Types of clausal coordination

Within clausal coordination, we may distinguish three main types of conjunction: conjoined conjunction, adversative conjunction, and disjunctive conjunction.

Depending on the type of conjunction, LIS coordinates clauses either through the employment of both manual and non-manual conjunctions, or through the only use of non-manual markings.

In the following example, a case of conjoined conjunction, the two clauses are coordinated only through the non-manual markings composed of: a change in head and shoulder position between the two clauses (which are produced in a different location in space), chin down (cd) at the end of the first clause, and eye blink signalling the boundary between clauses.

cd
MARIO CAKE PREPARE LUCA BANANA CL(unspread 5): 'cut_banana'
'Mario prepares a cake and Luca cuts a banana.'

When joining clauses in adversative conjunction, they may be coordinated through the use of the manual conjunction BUT, as shown below. When it happens, the two conjoined clauses are also marked by chin down (cd) and eye blink at the end of the first clause.

cd
LUCA PARTY GO WANT BUT DANCE NOT
'Luca wants to go to the party, but he doesn't dance.'

In disjunctive conjunction, LIS employs the manual conjunction glossed OR and the following non-manual markers: optional forward body lean (bl-f), chin down (cd) and eye blink occurring at the end of the first clause, as shown in the example below.

cd
bl-f
EVENING IX(dem) A-N-N-A BOOK READ OR FILM SEE
'Tonight Anna will read a book or will watch a film.'

In the following sections, the three types of clausal coordination will be described in detail.

3.1.2 Coordination by manual markers

In this section, we describe the manual markers LIS employs to coordinate clauses in the three types of conjunction: conjoined conjunction, adversative conjunction and disjunctive conjunction.

3.1.2.1 Manual markers of coordination

When coordinating clauses, LIS makes use of manual markers of conjunction in conjoined conjunction, adversative conjunction and disjunctive conjunction. In the following sections, their optionality or obligatoriness, as well as their position in the sentence will be described.

3.1.2.1.1 Manual markers in conjoined coordination

In conjoined coordination, clauses may be coordinated through the use of the manual marker PLUS.

PLUS

The example below shows two clauses coordinated through the sign PLUS.

L-A-U-R-A BOOK READ PLUS C-A-R-L-O TELEVISION SEE
‘Laura reads a book and Carlo watches television.’

3.1.2.1.2 Manual markers in adversative coordination

In adversative coordination, LIS may employ the manual marker glossed BUT produced either as a one-handed (a) or two-handed (b) sign with all fingers extended, as shown in the pictures below.

a. BUT (one-handed)

b. BUT (two-handed)

The example below shows the use of BUT in a sentence.

LAURA WINE DRINK WANT BUT FATHER WANT NOT
'Laura wants to drink wine, but her father doesn't want her to.'

3.1.2.1.3 Manual markers in disjunctive coordination

The manual marker employed in disjunctive coordination is the sign glossed OR. It is a one-handed sign produced with the thumb and index finger closed in a circle and the other fingers extended. It is produced with short repeated movements of the hand from right to left.

OR

The example below shows the use of OR in context.

M-A-R-C-O MONEY SASS(5): 'size_big' MONEY BANK DEPOSIT OR EGYPT TICKET PLANE BUY
'Marco will either deposit the money in the bank or buy a plane ticket to Egypt.'

3.1.2.2 Position of manual markers of coordination

In this section, we shall describe the position of manual markers of coordination in the different types of clause conjunction.

3.1.2.2.1 Position of manual markers in conjoined coordination

In conjoined coordination, the manual marker PLUS is produced between the two clauses.

3.1.2.2.2 Position of manual markers in adversative coordination

In adversative coordination, the manual marker BUT occurs between the first and the second clause, as confirmed by the presence of the following prosodic non-manual markings signalling the clause boundary between the first and the second conjunct: a pause in the signing stream, eye blink and chin down (cd) after the last sign of the first clause. These non-manuals marking the end of the first clause precede the manual marker BUT.

cd
ANNA$_a$ MARIO$_b$ $_a$PERSUADE$_b$ DONE BUT PARTY $_b$GO$_a$ NOT
'Anna tried to persuade Mario, but he didn't go to the party.'

3.1.2.2.3 Position of manual markers in disjunctive coordination

As in adversative coordination, also in disjunctive coordination, the manual marker OR occurs between the first and the second conjunct. Evidence for its position is provided by the same prosodic non-manuals marking clause boundary in adversative coordination.

cd
ANNA IX TELEVISION SEE OR BOOK READ
'Anna watches television or reads a book.'

3.1.2.3 Optionality or obligatoriness of manual markers of coordination

In this section, we will specify the optionality or obligatoriness of the manual markers of coordination across the three types of conjunctions.

3.1.2.3.1 Optionality/obligatoriness of manual markers in conjoined coordination

It is optional to use the manual marker PLUS in conjoined coordination.

3.1.2.3.2 Optionality/obligatoriness of manual markers in adversative conjunctions

The manual marker BUT is not obligatory in adversative conjunction.

3.1.2.3.3 Optionality/obligatoriness of manual markers in disjunctive conjunctions

The manual marker OR is obligatory when coordinating two clauses in disjunctive conjunction. This constraint does not hold when coordinating signs within a clause in disjunctive conjunction, where non-manual markers alone may be used to coordinate the constituents [LEXICON 3.9.1].

3.1.3 Coordination by non-manual markers

In this section, we will describe the types and spreading of non-manual markers in clause coordination across the three types of conjunctions: conjoined conjunction, adversative conjunction, and disjunctive conjunction, both in the presence of manual markers and in their absence, namely, when the conjunct clauses are juxtaposed.

3.1.3.1 List of non-manual markers of coordination

We will describe here the set of non-manual markings employed in the three different types of clause coordination in LIS.

3.1.3.1.1 Non-manual markers in conjunctive coordination

The non-manual markers employed in conjunctive coordination are: a change in body orientation and head position, a signing pause, eye blink, and chin down. All these non-manual markings can be used in the presence of the manual marker AND, or as the only markers in conjunctive coordination.

3.1.3.1.2 Non-manual markers in disjunctive coordination

In disjunctive coordination, the non-manual markers cannot be employed alone to coordinate two clauses. They are produced with the manual marker OR. They are composed of: a signing pause, eye blink, chin down, the labial movements reproducing the equivalent Italian word *o* 'or', and, optionally, forward body lean.

3.1.3.1.3 Non-manual markers in adversative coordination

LIS marks adversative coordination through the use of the following non-manual markers: a pause in the signing stream, eye blink, chin down, backward head tilt, and, optionally, raised or furrowed brows. All these non-manual markings maybe be used in the presence of the manual marker BUT, or as the only markers.

3.1.3.2 The spreading domain of non-manual markers of coordination

In this subsection, the spreading domain of the non-manuals marking the different types of coordination is illustrated.

3.1.3.2.1 Spreading domain of non-manual markers in conjunctive coordination

The non-manuals marking conjunctive coordination have a different spreading domain. The first conjunct is generally produced on the right of the signing space, hence the signer's head and body are turned to the right (this is indicated in the example below by the subscript 'a'). The second conjunct is produced on the opposite side of the signing space, hence the signer's head and body are turned to the left (this is indicated in the example below by the subscript 'b'). The chin is lowered at the end of the first clause (and optionally also at the end of the second clause) (cd), and a signing pause and eye blink occur at the boundary of the two clauses.

MARIA FOOD$_a$ COOK$_a$ STIR$_a$ L-U-C-A$_b$ TABLE$_b$ DISH++$_b$ ARRANGE$_b$
(cd) (cd)
'Maria cooks the food and Luca sets the table.'

3.1.3.2.2 Spreading domain of non-manual markers in disjunctive coordination

In disjunctive coordination, a signing pause, eye blink and chin down (cd) occur between the two conjuncts. The labial movements reproducing the equivalent Italian word *o* 'or' and, optionally, forward body lean occur simultaneously to the production of the manual marker OR.

M-I-R-K-O STUDENT MEET OR MEETING ATTEND
(cd)
([o])
'Mirko meets the student or attends the meeting.'

3.1.3.2.3 Spreading domain of non-manual markers in adversative coordination

In adversative coordination, a pause in the signing stream and eye blink occur between the two conjuncts, a backward head tilt (ht-b), and, optionally, raised (re) or furrowed brows are produced simultaneously to the manual marker, if present, or at the beginning of the second conjunct, if the manual marker is absent.

ht-b
L-U-C-A_a PARTY GO DANCE LIKE NOT
'Luca goes to the party, but he doesn't like to dance.'

3.1.4 Properties of coordination

This section describes some properties displayed by LIS coordinated clauses.

As shown in [SYNTAX 3.1], clauses may be coordinated either through the employment of conjunctions, as the manual sign PLUS in (a), or through the juxtaposition of the conjoined clauses, as in (b) below.

a. L-A-U-R-A BOOK READ PLUS C-A-R-L-O TELEVISION SEE
'Laura reads a book and Carlo watches television.'

b. MARIA FOOD COOK STIR L-U-C-A TABLE DISH++ ARRANGE
'Maria cooks the food and Luca sets the table.'

3.1.4.1 Extraction

The property of extraction is related to the movement of a constituent to the left edge or to the right edge of the sentence. This happens in *wh*-questions [SYNTAX 1.2.3] or topics [PRAGMATICS 4.2]. In LIS, extraction out of a coordinate structure is possible if the same constituent is extracted from both coordinated conjuncts. In the example below, WHAT is interpreted as the object of the verb in both conjuncts.

neg wh
MOTHER LIKE FATHER LIKE.NOT $Q_{artichoke}$
'What does mother like and father not like?'

The following is another case of extraction of a constituent (ORANGE IX) out of coordinated clauses through topicalisation.

top
ORANGE IX MOTHER LIKE FATHER IMPOSSIBLE_NO_WAY
'As for oranges, mother likes them and father dislikes them.'

In the examples above, the extracted constituent is the object of the verb in each coordinated conjunct.

3.1.4.2 Gapping

Gapping refers to the possibility of eliding the verb of a conjunct in a coordinated structure. In LIS, it is possible to elide the verb of one coordinated clause, if it is identical to the verb of the other conjunct, as shown in the examples below.

a. LAURA$_a$ MEAT EAT SARA$_b$ SALAD
'Laura eats meat and Sara salad.'

b. TOMORROW PARTY. IX$_1$ MEAT BRING A-N-N-A BEER L-U-C-A SALAD
'Tomorrow there is a party. I will bring meat, Anna beer, and Luca salad.'

c. IX$_1$ NEWS SEE IX$_2$ FILM
'I watch the news and you the film.'

In attested cases of gapping, the elided verb is in the second conjunct, never in the first conjunct.

3.1.4.3 Scope

Another property associated with coordination is the scope of some elements, like question particles and negative elements [SYNTAX 1.5]. When a question sign or a negative sign affects the meaning of two constituents, those constituents can be analysed as conjuncts of a coordinated structure. This is what happens in LIS.

3.1.4.3.1 Scope of negation

In LIS, a negative element may affect the meaning of two verbs in coordinated conjuncts only if they share the same subject. In the example below, the negative sign NEG_O negates the verb of both conjuncts. This suggests that what is coordinated in the sentence below is not two clauses, but two verb phrases.

neg
GABRIELE CAR CLEAN_UP WEDDING GO NEG_O
'Gabriele did not clean the car and did not go to the wedding.'

3.1.4.3.2 Scope of yes/no questions

In LIS, a question sign, YES^NO in the example below, can have scope over both conjuncts of a coordinated structure.

y/n
GABRIELE PADUA STAY IX_a $LARA_a$ GO MOUNTAIN YES^NO
'Gabriele remained in Padua and Lara went to the mountain, right?'

3.2 Subordination: distinctive properties

Subordination refers to clauses which are hierarchically connected to each other, unlike coordination where they are joined together equally. In subordination, only the main clause is independent, namely syntactically and semantically autonomous, while the subordinate clause is dependent upon the main clause. In the following subsections, we will describe one property typical of subordination, subject pronoun copy, in order to serve as an identification tool to distinguish subordinate from coordinate clauses.

3.2.1 Subject pronoun copy

The pronoun copy phenomenon [SYNTAX 2.6] consists of a pronoun at the end of a sentence which relates to an argument of the sentence, as exemplified in the LIS sentence below where the final copy pronoun IX_3 refers to the subject CAT.

CAT_a IX_a KIBBLE LIKE IX_{3a}
'The cat likes the kibble, he.'

In LIS, the pronoun copy can be related to both the subject and the object of the clause (an example of object pronoun copy is presented below). From a pragmatic point of view, the pronoun copy can refer to constituents which fulfil different pragmatic functions, as, for example, focus or emphatic expressions, but it seems to mostly accompany topics [PRAGMATICS 4.2] as displayed by the sentence below.

top
$MOUSE_a$ CAT CL(spread curved open 5): 'eat' DONE IX_{3a}
'As for the mouse, the cat ate it.'

In LIS complex sentences, composed of a main clause and a subordinate clause, the subordinate clause typically precedes the main clause. In this case, a pronoun copy of the main clause subject may appear at the end of the sentence, right after the main clause. The sentence below, an indirect declarative clause, demonstrates such a case where the pronoun copy IX_3 refers to MOTHER, the subject of the main clause.

M-A-R-I-A FRUIT EAT MOST MUST MOTHER_a SAY IX_{3a}
'My mum said that Maria should eat more fruit, she (my mum).'

However, in object clauses [SYNTAX 3.3.2] the order between the subordinate and the main clause may be inverted, that is, the subordinate clause may follow the main clause, as shown below. In this case, if present, the pronoun copy refers to the subject of the subordinate clause.

FATHER REMEMBER IX_a SISTER_a ADVENTURE LIKE IX_{3a}
'My dad remembers that his sister likes adventures, she.'

In both complex sentences reported above, the indirect declarative clause and the object clause, the subject pronoun copy refers to the subject of the very last clause. For this reason, the pronoun copy strategy is not a diagnostic to discriminate between a main and a subordinate clause. However, while the pronoun copy can easily be found in complex sentences composed of a subordinate and a main clause, it is very rarely employed when main sentences are coordinated [SYNTAX 2.6.1], as shown in the example below, where no pronoun copy is used.

MOTHER_a IX_a CHOCOLATE_a WHITE ADORE_a IX_b FATHER BLACK_b
'My mother likes the white chocolate and my father likes the dark one.'

3.2.2 Position of question signs

To be developed.

3.2.3 Spreading of non-manual markers

To be developed.

3.2.4 Interpretation of embedded negation in the matrix clause

To be developed.

3.3 Argument clauses

This section describes a type of subordination whereby the subordinate clause functions as the subject [SYNTAX 3.3.1] or the object [SYNTAX 3.3.2] of the main clause predicate.

Role shift [SYNTAX 3.3.3], whereby the signer assumes the perspective of another referent, is also described in this section.

3.3.1 Subject clauses

A subject clause (or subjective) is a subordinate argument clause carrying the syntactic function of a subject [SYNTAX 2.2.1]. Subject clauses (within brackets) can be: i) simple declarative clauses, with no special interpretation (e.g. '[That Gianni will come] should be clear to you'), ii) relative clauses [SYNTAX 3.4] (e.g. '[Whoever has finished the exam] can go out'), or iii) interrogative clauses [SYNTAX 1.2.3] (e.g. '[Whether I am coming or not] is uncertain'). In the following, however, we will only treat simple declarative clauses, referring to the relevant sections for the other two types.

In LIS, verbs that can take as an argument a subject clause include SEEM (a), BE_ASTONISHING (b), STRANGE (c), and OBLIGATION (d).

bl-f
a. GIANNI ARRIVE SEEM
'It seems that Gianni has arrived.'

b. GIANNI WORK RESIGN BE_ASTONISHING
'It is surprising that Gianni has resigned.'

c. GIANNI ARRIVE STRANGE
'It is strange that Gianni has arrived.'

d. GIANNI ARRIVE OBLIGATION
'It is compulsory for Gianni to come.'

3.3.1.1 Position(s) within the matrix clause

In LIS, subject clauses can be *extraposed* namely they can appear at the end of the sentence, as shown by the following examples.

bl-f
a. SEEM GIANNI ARRIVE
'It seems that Gianni has arrived.'

bl-f
b. BE_ASTONISHING GIANNI IX WORK RESIGN
'It is surprising that Gianni has resigned.'

c. STRANGE GIANNI ARRIVE
'It is strange that Gianni has arrived.'

d. OBLIGATION GIANNI ARRIVE
'It is compulsory for Gianni to come.'

There does not seem to be a clear preference for the initial or final position, and no pronominal index is required if the subject clause is extraposed.

3.3.1.2 Special non-manual markers

Subject clauses do not seem to be marked by a special non-manual marker, but there is an intonational break between the main verb and the subject clause. Verbs like SEEM, BE_ASTONISHING, STRANGE and OBLIGATION are uttered with a lexically specified non-manual marker which stops when the intonational break occurs. Therefore, the boundary of the subject clause is marked by this interruption. Another marker of the boundary between the subject clause and the verb that takes it as an argument is body lean, as indicated in the examples below.

3.3.1.3 Tense and aspectual marking

Subject clauses do not seem to be reduced, as they can contain a verb, a lexical subject and the aspectual marker DONE.

bl-f
a. SEEM GIANNI CONTRACT PUT_SIGNATURE DONE
'It seems that Gianni has signed the contract.'

bl-f bl-b
b. GIANNI CONTRACT PUT_SIGNATURE DONE SEEM
'It seems that Gianni has signed the contract.'

3.3.1.4 Anaphoric relations

To be developed.

3.3.1.5 Null arguments

To be developed.

3.3.2 Object clauses

An object clause (or completive, or complement clause) is a clause carrying the syntactic function of an object. Object clauses (within brackets) can be declarative clauses (e.g. 'Piero knows [that Gianni signed the lease]'), free relative clauses (e.g. 'Paolo bought [what is necessary]') [SYNTAX 3.4] or interrogative clauses (e.g. 'Paolo asked me [who took the exam]') [SYNTAX 1.2.3]. In the following, however, we will only treat simple declarative clauses, referring to the relevant sections for the other two types.

Depending on the matrix verb, object clauses can correspond to at least two types of structures: i) finite object clauses and ii) non-finite object clauses. Finite object clauses can have a lexical subject, tense and aspectual markings. The subject of the object clause does not need to refer to the arguments in the main clause. The sentence 'Gianni said that Piero will sign the contract' contains a finite object clause, as shown by the presence of an auxiliary ('will') and of a lexical subject ('Piero'). On the other hand, non-finite object clauses cannot have a lexical subject or tense and aspectual markings. The subject of the object clause is interpretatively dependent on an argument in the main clause. The sentences 'Gianni forgot to sign the contract' and 'The cook forced Maria to eat meat' contain a non-finite object clause. The null subject of the object clause depends in its interpretation on the main clause subject ('Gianni'), in the first sentence, and on the main clause object, ('Maria'), in the second sentence.

3.3.2.1 Verbs taking object clauses

Verbal predicates that take an object clause are traditionally classified into a number of groups characterized in semantic terms. A representative set of predicates with some LIS verbs for each type is presented below.

i) Desiderative predicates: HOPE

GIANNI HOPE LEAVE
'Gianni hopes (to be able to) leave.'

ii) Directive predicates: FORBID

re
PIETRO LEAVE IX GIANNI FORBID
'Gianni forbids Pietro from leaving.'

iii) Achievement predicates: BE_ABLE

re
GIANNI LEAVE PUNCTUAL BE_ABLE
'Gianni manages to leave on time.'

iv) Factive predicates: COMPLAIN

GIANNI COMPLAIN TRAIN GO_AWAY CL(curved open V): 'get_on_train'
NEG_O
'Gianni complained that the train left and he could not board it.'

v) Experiencer-object verbs: HAPPY

re bl-right
GIANNI HAPPY PIETRO LEAVE
'Gianni is happy that Pietro left.'

vi) Aspectual verbs: BEGIN

GIANNI BEGIN HOUSE BUILD
'Gianni began building a house.'

vii) Perception predicates: SEE

rs: Gianni
GIANNI SEE MARIA LEAVE
'Gianni saw Maria leaving.'

viii) Propositional attitude predicates: SURE

GIANNI SURE PIETRO CAKE EAT ALL
'Gianni is sure that Pietro ate all the cake.'

ix) Utterance predicates: SAY

GIANNI SAY PIETRO$_a$ IX$_a$ CAKE EAT ALL
'Gianni said that Pietro ate all the cake.'

3.3.2.2 Position(s) within the matrix clause

Although the unmarked order when the object is a noun phrase is SOV [SYNTAX 2.3.1.1], finite object clauses resist sitting between the matrix subject and the matrix verb. As a matter of fact, a finite object clause normally precedes or follows the matrix clause. The following are examples of an object clause that follows (a) or precedes (b) the matrix clause that contains the verb HOPE.

bl-right
a. GIANNI HOPE MARIA LEAVE
'Gianni hopes Maria will leave.'

re bl-b
b. MARIA LEAVE GIANNI HOPE
'Gianni hopes Maria will leave.'

If the object clause is sentence initial, it can be resumed by the sign PE. PE is the determiner-like element also present in relative clauses [SYNTAX 3.4]. In the following sentence, the embedded clause is articulated on the side of the dominant hand (as indicated by body lean towards the right) and PE is articulated after the embedded clause in the same area of the signing space to indicate that it refers to the object clause.

bl-r
PIETRO$_a$ IX$_a$ CAKE EAT ALL PE GIANNI SURE
'Gianni is sure that Pietro ate all the cake.'

In the following sentence, the embedded clause is also articulated with a body lean towards the right. PE, which follows the main subject, is articulated with the same body lean.

bl-r bl-r
GIANNI CAR SEIZE MARIA PE WARN
'Gianni spreads the news that Gianni stole a car.'

The choice between sentence initial (with or without PE) and sentence final position is fairly free, as confirmed by the following pairs in which the sentence (a) contains a sentence final object clause and the sentence (b) contains a sentence initial object clause:

i) Clausal argument of SAY:

a. GIANNI SAY PIETRO$_a$ IX$_a$ CAKE EAT ALL
'Gianni says that Pietro ate all the cake.'

re
b. PIETRO CAKE EAT ALL GIANNI SAY
'Gianni says that Pietro ate all the cake.'

ii) Clausal argument of SURE:

a. GIANNI SURE PIETRO$_a$ IX$_a$ CAKE EAT ALL
'Gianni is sure that Pietro ate all the cake.'

bl-right
b. PIETRO CAKE EAT ALL GIANNI KNOW SURE
'Gianni knows for sure that Pietro ate all the cake.'

iii) Clausal argument of SEE:

bl-right
a. GIANNI SEE MARIA LEAVE
'Gianni saw Maria leaving.'

b. MARIA LEAVE GIANNI SEE
'Gianni saw Maria leaving.'

iv) Clausal argument of HAPPY:

a. GIANNI HAPPY PIETRO LEAVE

'Gianni is happy that Pietro left.'

re
b. PIETRO LEAVE GIANNI HAPPY

'Gianni is happy that Pietro left.'

v) Clausal argument of COMPLAIN:

a. GIANNI COMPLAIN TRAIN GO_AWAY CL(curved open V): 'get_on' NEG_O

'Gianni complained that the train left and he could not board it.'

b. TRAIN GO_AWAY CL(curved open V): 'get_on' NEG_ON GIANNI COMPLAIN

'Gianni complained that the train left and he could not board it.'

Non-finite object clauses occupy a different position, though. This is shown in the following sentences, in which we can infer that the object clause is non-finite because:

i) it cannot contain a tense or aspectual auxiliary and
ii) the null subject in the object clause is interpretatively dependent (it refers to the main clause subject GIANNI in the (a) sentence and to the main clause indirect object MARIA in the (b) sentence). In both sentences the non-finite object clause appears between the matrix subject and the matrix verb, a position in which finite object clauses do not normally occur.

re
a. GIANNI CONTRACT PUT_SIGNATURE FORGET

'Gianni forgot to sign the contract.'

re
b. CHEF IX$_a$ MARIA$_a$ MEAT EAT FORCE$_a$

'The cook forced Maria to eat meat.'

However, non-finite object clauses (like finite clauses) can also be found in the left periphery of the sentence.

CONTRACT PUT_SIGNATURE GIANNI FORGET
'Gianni forgot to sign the contract.'

If the main verb takes both an indirect object and an object clause, the following two orders are attested.

bl-right
re
a. GIANNI PIETRO PERSUADE LEAVE
'Gianni convinced Pietro to leave.'

bl-right
b. GIANNI PERSUADE PIETRO LEAVE
'Gianni convinced Pietro to leave.'

Finally, both finite and non-finite clauses can appear in another type of structure. In this structure, the main verb is followed by the sign $Q_{artichoke}$ and the object clause immediately follows. This structure, which is very productive, is illustrated in (a) with a finite object clause and in (b) with a non-finite object clause.

wh bl-b
a. GIANNI SAY $Q_{artichoke}$ $PIETRO_a$ CAR_a $POSS_{3a}$ $SEIZE_a$
'Gianni said that someone stole Pietro's car.'

wh bl-b
b. GIANNI FORGET $Q_{artichoke}$ CONTRACT PUT_SIGNATURE
'Gianni forgot to sign the contract.'

Although these sentences may seem bi-clausal constructions involving a question and an answer, they are likely to be special cases of subordination, possibly to be related to free relatives [SYNTAX 3.4]. For instance, they do not have the same non-manuals and intonation of question-answer pairs, as shown by the pair (a) and (b) below, which are the question-answer pairs corresponding to (a) and (b) above.

bl-left
wh
a. A: GIANNI SAY $Q_{artichoke}$
bl-right
B: $PIETRO_a$ CAR $POSS_{3a}$ SEIZE
'What did Gianni say?' 'Someone stole Pietro's car.'

bl-left
wh
b. A: GIANNI FORGET Q$_{\text{artichoke}}$
bl-right
B: CONTRACT PUT_SIGNATURE
'What did Gianni forget?' 'To sign the contract.'

3.3.2.3 Factivity

No peculiarity of object clauses introduced by factive verbs has been identified.

3.3.2.4 Special non-manual markers

A different use of space distinguishes finite and non-finite object clauses. If the object clause is finite, it is typically articulated with a body lean, as indicated in the examples below (the transition from object clause to main clause is signalled by body shift).

bl-right
PIETRO LEAVE GIANNI HAPPY
'Gianni is happy that Pietro left.'

Body lean can (but does not need to) occur on a non-finite clause, as confirmed by the following sentence.

CONTRACT PUT_SIGNATURE GIANNI FORGET
'Gianni forgot to sign the contract.'

Finally, whether the sign PE is used or not, eyebrows can be raised on the sentence initial object clause. When this happens, the sentence initial object clause plausibly sits in a topic position [PRAGMATICS 4.2].

3.3.2.5 Tense and aspectual marking

As expected, aspectual markers can be present in finite object clauses. The examples below show the occurrence of DONE (a) and TO_BE_DONE (b).

re
a. PIETRO CONTRACT PUT_SIGNATURE DONE GIANNI KNOW
'Gianni knows that Pietro signed the contract.'

re
b. PIETRO CONTRACT PUT_SIGNATURE TO_BE_DONE GIANNI KNOW
'Gianni knows that Pietro will sign the contract.'

3.3.2.6 Anaphoric relations with the main clause arguments

When the object clause is non-finite, its subject must be null and its interpretation depends on the subject or the object of the main clause, as indicated above. However, the anaphoric relations with the main clause arguments are more complex in the presence of role shift [SYNTAX 3.3.3].

3.3.2.7 Occurrences of null arguments

The subject of the object clause can be null in finite object clauses and must be null in non-finite ones.

3.3.3 Role shift

Role shift is a strategy that may be used in contexts where direct speech is used but has a much more general distribution. It is characterized by two general properties. Semantically, the expressions that are signed under role shift are somehow interpreted 'from another person's perspective', or 'with respect to another context' than the context of the actual speech act.

Morpho-syntactically, role shift is overtly marked by some modification, which may involve: i) body shift, ii) change in the direction of eye gaze, and/or iii) altered facial expressions in order to mark that the signer is adopting somebody else's perspective. We will distinguish between role shift as used to report someone else's speech or thought (attitude role shift), and role shift used to describe physical actions performed by someone else (action role shift, also called constructed action).

The following sentence illustrates the occurrence of attitude role-shift. Two features should be stressed. First, after the main verb the signer shifts his body towards the locus associated with the main subject ('Gianni') to indicate that the rest of the utterance should be in-

terpreted from this person's perspective. Second, and related to this, the first person pronoun IX$_1$ in the embedded subject position does not refer to the actual speaker, as is normally the case with indexical pronouns, but, rather, to the person whose perspective is adopted (namely 'Gianni').

rs: Gianni
GIANNI SAY IX$_1$ LEAVE SOON
'Gianni said that he would leave soon.'

Other expressions are not evaluated with respect to the context of the actual speech act under role shift. Other deictic expressions [PRAGMATICS 1.1] do the same. These include expressions like IX(loc)$_{[proximal]}$, IX(loc)$_{[distal]}$, TODAY, TOMORROW, NOW, etc. For example, in the following sentence TOMORROW is evaluated with respect to the moment of Gianni's utterance, hence the translation.

rs: Gianni
YESTERDAY GIANNI SAY$_1$ IX$_1$ LEAVE TOMORROW
'Yesterday Gianni told me that he would leave today.'

Attitude role shift somewhat resembles direct speech in spoken languages in that it is intended to report more or less faithfully the words or the mental content of the person whose perspective is adopted.

Action role shift is not used to report the content of a thought or of an utterance, but to describe an action. By using action role shift the signer *becomes* the agent of the action and this is indicated (among other things) by body shift towards the position in space associated with the actual person who performed the action. For example, in the following sentence, the verb DONATE starts being articulated from the signer's body, but, as the signer shifts towards the position associated with Gianni, the sentence indicates that the person who performed the action is not the actual speaker, but Gianni.

re rs: Gianni
GIANNI ARRIVE BOOK $_1$CL(flat open 5): 'donate_book'$_2$
'When Gianni arrives, he will give you the book as a present.'

However, by using action role shift, the signer does not simply report that someone else performed a given action, but can also indicate how that action was performed.

In the following sentences, the use of role shift allows the signer to show, instead of describing it, the gracious act of Gianni (a) and

the angry attitude of the customer (b). The possibility to directly express how the action is performed, including the body language of the protagonist of the action, makes action role shift a very powerful narrative device.

rs: Gianni
a. GIANNI HOUSE ARRIVE. MARIA IX$_1$ FLOWER $_1$CL(closed 5): 'donate_flower'$_2$

'Gianni arrived. He donated flowers to Maria.'

b. IX$_1$ QUIET IX$_1$ SEE WAITER MISTAKE CL(curved open L): 'drop_dish'
rs: customer
CUSTOMER CL(curved open L): 'drop_dish'$_1$ CL(5): 'food_fall_on'$_1$
rs: customer
GET_ANGRY $_1$INSULTE++$_2$
'While there, I see a waiter making a mistake. He makes a dish fall on a customer, who gets dirty. The customer insults the waiter angrily.'

Another noticeable property is that, when reporting a dialogue or an event involving multiple persons, the signer can role shift into (assume the perspective of) multiple characters. This may happen sequentially, as when the signer shifts back and forth between two loci in the signing space linked to two characters, or simultaneously, when, in action role shift, the dominant and non-dominant hands represent two characters involved in some action.

3.3.3.1 Markers of role shift

Body shift toward the locus of the person whose perspective is adopted is the main marker of role shift, but this does not need to involve shifting of the entire body. Change in the direction of eye gaze and head movement may suffice. Change in body posture and altered facial expressions in order to mark that the signer is adopting somebody else's perspective also frequently occur.

3.3.3.2 Integration of the role-shifted clause into the main clause

There is some evidence that an object clause marked by role shift is less integrated into the main clause than the corresponding object clause without role shift. This is suggested by the following con-

trast. In sentence (a) there is no role shift, therefore the third person pronoun IX_3 is used to refer to the matrix subject GIANNI. The object clause is fully integrated into the main clause, as shown by the fact that the entire sentence can be interpreted as a direct question, although the sign WHAT is the object of the embedded clause. Sentence (b) is minimally different: as role shift occurs, GIANNI is referred to by the pronoun IX_1. However, the interpretation in which the entire sentence is interrogative is not possible. The sign $\text{Q}_{\text{artichoke}}$ can be interpreted only inside the embedded structure, as shown by the translation.

re wh
a. $\text{GIANNI}_a\ \text{IX}_a$ SAY IX_{3a} BUY $\text{Q}_{\text{artichoke}}$
'What did Gianni say that he bought?'

wh
rs
b. GIANNI SAY IX_1 BUY $\text{Q}_{\text{artichoke}}$
'Gianni said: "What did I buy?"'

3.3.3.3 Syntactic contexts introducing attitude role shift

Verbs that support attitude role shift include utterance predicates (like SAY) and propositional attitude predicates (like THINK). The following sentences contain a representative, but not complete, list of verbs that can introduce attitude role shift.

rs
a. $\text{GIANNI}_a\ \text{IX}_a$ THINK IX_1 LEAVE SOON
'Gianni thinks that he will leave soon.'

rs
b. GIANNI DOUBT IX_1 LEAVE SOON
'Gianni doubts that he would leave soon.'

rs
c. GIANNI WARN IX_1 LEAVE SOON
'Gianni warned that he would leave soon.'

rs
d. GIANNI CONFIRM IX_1 LEAVE SOON
'Gianni confirmed that he would leave soon.'

rs
e. GIANNI TEXT IX_1 LEAVE SOON
'Gianni said by text message that he would leave soon.'

As shown by the following sentence, attitude role shift can occur in an indirect question introduced by an interrogative verb.

rs
GIANNI ASK++$_1$ IX_1 LEAVE SOON
'Gianni wonders whether he will leave soon.'

Attitude role shift is not restricted to cases where the subject of the main verb is a proper name or an expression denoting a definite individual, like in the examples above. Provided that spatial anchoring is possible, the subject of the main verb can be a quantification [SYNTAX 4.4]. This is shown in the following examples.

rs
a. IX_{3pl} NOBODY SAY IX_1 CONTRACT PUT_SIGNATURE DONE
'Nobody (among them) said that s/he signed the contract.'

re rs
b. SOMEBODY IX_{3pl} SAY IX_1 CONTRACT PUT_SIGNATURE DONE
'Someone (among them) said that he signed the contract.'

rs
c. ALL SAY IX_1 CONTRACT PUT_SIGNATURE DONE
'Everybody said that s/he signed the contract.'

Role shift is possible also when the subject of the main verb is an interrogative expression, as in the following example.

re
rs wh
IX_1 CONTRACT PUT_SIGNATURE DONE IX_{3pl} SAY WHO
'Who (among them) said that s/he signed the contract?'

3.3.3.4 Special signs introducing action role shift

Attitude role shift is systematically introduced by verbs that report a mental attitude or an act of saying, apart from intrinsically negative verbs like DENY that seem to resist role shift. Action role shift does not need to be introduced by any special sign.

3.3.3.5 Syntactic differences between action role shift and attitude role shift

Possible differences of the level of integration into the main clause of action and attitude role shift need to be further studied.

3.4 Relative clauses

Relative clauses are subordinate clauses that modify a noun (called *head* of the relative clause). The noun modified by the relative clause has a syntactic role both in the main clause and in the relative clause. LIS makes a productive use of relative clauses marking them with manual [SYNTAX 3.4.2] and non-manual markers [SYNTAX 3.4.6].

3.4.1 Types of relative clause

LIS displays more than one type of relative clauses. It has both what we shall call *full* relative clauses and *free* relative clauses.

In LIS full relative clauses, the head noun (always in bold in the examples) is produced inside the relative clause (always within brackets in the examples) according to its syntactic role. In the following example, the head noun CHILD is the subject of the relative clause predicate EAT, it is marked by specific non-manuals (glossed 'rel') marking relative clauses in LIS [SYNTAX 3.4.6] and it follows the time adverbial YESTERDAY modifying the predicate of the relative clause. Time adverbials always mark the beginning of a clause in LIS [SYNTAX 2.3.1.2]. The entire relative clause is marked by specific non-manuals (glossed 'rel'). Optionally, the main clause (TODAY STOMACH_ACHE in the following example) can contain a pronominal sign (IX_3) co-referent with the head noun in the relative clause (co-reference between elements in a sentence is signalled in the examples by the presence of the same indexing).

rel
[YESTERDAY CHILD++$_a$ CAKE EAT PE$_a$] TODAY (IX_{3a}) STOMACH_ACHE

'The children that yesterday ate the cake today have stomach ache.'

In the example below, the head noun DOG is produced inside the relative clause in object position.

rel
[P-A-O-L-O DOG$_a$ FIND PE$_a$] L-U-C-A CL(flat open 4): ‘wash_dog’
‘Luca washes the dog that Paolo found.’

As opposed to full relative clauses, LIS free relative clauses do not display a head noun modified by the relative clause. In its place, the relative clause displays a *wh*-sign phonologically homophonous to *wh*-signs in LIS *wh*-questions [LEXICON 3.7.5]. The *wh*-sign is produced inside the relative clause and it is marked by the non-manual markings (rel) spreading over the relative clause.

rel
[EXAM DONE WHO] GO_OUT BE_ABLE
‘Who has taken the exam can go out.’
(recreated from Branchini 2009, 104)

3.4.2 Presence or absence of a relativization sign

LIS relative clauses display the presence of manual signs of relativisation. Full relative clauses and free relatives differ for the relativisation sign employed.

3.4.2.1 List of relativization signs

LIS full relative clauses display a manual sign (glossed PE in the examples) spatially agreeing with the head noun. The sign PE is produced with only the index finger extended (configuration G in LIS) in the neutral space. During its movement, the wrist twists from a position of the hand with the palm facing the face of the signer to a position of the hand whose palm faces the signer’s interlocutor, as illustrated in the video below. During the production of the sign, oral components involving the production of a bilabial phoneme such as /p/ are produced, hence the gloss PE [LEXICON 3.7.6].

PE

When the head noun is an abstract entity or when it is a noun produced on the body of the signer [LEXICON 3.1], the relativisation sign PE agrees with an arbitrary point in the signing space, as shown in the example below.

rel
[P-A-O-L-O M-A-R-I-A IDEA SUGGEST PE] IMPORTANT

'The idea that Paolo suggested to Maria is important.'
(recreated from Branchini 2014, 193)

As already pointed out [SYNTAX 3.4.1], LIS free relatives display the presence of a *wh*-sign. However, not all *wh*-signs are allowed to mark the relative clause in LIS free relatives. The table below lists the *wh*-signs permitted or not permitted in this type of construction.

Table 1 *Wh*-signs allowed in LIS free relatives

Wh-signs	Availability to mark LIS free relatives
WHO	yes
WHAT	no
WHICH	yes
HOW	yes
HOW_MANY	no
WHERE	yes
WHEN	yes
WHY	yes

As shown in the table above, all *wh*-signs except WHAT and HOW_MANY can be used in LIS free relatives. The examples below exemplify free relatives with the different *wh*-signs available to mark this construction in LIS.

rel
a. [EXAM DONE WHO] GO_AWAY BE_ABLE
'Who has taken the exam can go out.'
(Branchini 2009, 104)

rel
b. [P-A-O-L-O LIKE WHICH] IX_1 SEE DONE
'I saw which Paolo likes.'
(Branchini 2009, 105)

rel
c. [G-I-A-N-N-I_3 MONEY $_3GIVE_1$ HOW] IX_1 LIKE NOT
'I don't like how Gianni gives me the money.'
(Branchini 2009, 106)

rel
d. [SISTER POSS$_1$ HOLIDAY GO WHERE] BEAUTIFUL
'Where my sister went on holiday is beautiful.'
(Branchini 2009, 106)

rel
e. [TRAIN ARRIVE WHEN] IX$_1$ READ DONE
'I read when the train arrives.'

rel
f. [P-A-O-L-O LEAVE WHY] IX$_1$ FIND_OUT
'I found out why Paolo left.'
(Branchini 2009, 106)

3.4.2.1.1 Human/non-human specificity of the relativization sign

LIS full relative clauses do not display a different relativisation sign for human/non-human referents represented by the head noun. In other words, regardless of the human/non-human feature of the head noun, LIS full relative clauses display the same sign PE.

Free relative clauses display *wh*-signs used for human referents, like the *wh*-sign WHO, and *wh*-signs employed for non-human referents, like the *wh*-sign WHAT.

3.4.2.1.2 Singular/plural specificity of the relativization sign

In LIS full relative clauses, the manual relativisation sign PE does not inflect for the singular/plural feature of the head noun. Even in the presence of a plural referent, the sign PE is invariant in its form. In the example below, although the head noun CHILD++ is plural, the sign PE agrees with one point in the signing space associated with the head noun.

rel
[CHILD++$_a$ WIN PE$_a$] TEACHER PRIZE GIVE
'The teacher gives the prize to the children who win.'
(recreated from Branchini 2014, 192)

As for LIS free relative clauses, *wh*-signs are specified for the singular number feature.

3.4.2.2 Position of the relativization sign

In full relative clauses, the sign PE can be produced at the end of the relative clause, as in the example (a), or adjacent to the head noun following it, as in the example (b).

rel
a. [CHILD++$_a$ WIN PE$_a$] TEACHER PRIZE GIVE
'The teacher gives the prize to the children who win.'
(Branchini 2014, 192)

rel
b. [CHILD$_a$ PE$_a$ COMPETITION WIN] TEACHER PRIZE GIVE
'The teacher gave a prize to the child who won the competition.'
(Branchini 2014, 199)

In free relatives, the *wh*-sign is always produced at the end of the relative clause [SYNTAX 3.4.2.1].

rel
[EXAM DONE WHO] GO_AWAY BE_ABLE
'Who has taken the exam can go out.'
(Branchini 2009, 104)

3.4.2.3 Optionality or obligatoriness of the relativization sign

In LIS full relative clauses, the presence of the relativisation sign PE is optional, as shown in the relative clause below where the relativisation sign is absent.

rel
[CHILD WIN] TEACHER PRIZE GIVE
'The teacher gives the prize to the child who wins.'

In LIS free relative clauses, the presence of the *wh*-sign is obligatory.

3.4.3 Position of the noun phrase with the relative clause within the matrix clause

In LIS full relative clauses, the relative clause (including the head noun) precedes the main clause regardless of the syntactic role of

the head noun in the main clause. In the examples below, the head noun CHILD is the subject of the main clause predicate FALL-DOWN in (a); and the indirect object of the main clause predicate GIVE in (b). In both sentences, the relative clause precedes the main clause.

rel
a. [CHILD$_a$ FOTBALL PLAY PE$_a$] YESTERDAY TREE CL(V): 'fall_down'
'The child who plays football yesterday fell off a tree.'

rel
b. [CHILD$_a$ FOOTBALL PLAY PE$_a$] YESTERDAY A-N-N-A$_b$ BALL NEW $_b$CL(unspread curved open 5): 'give_ball'$_a$ DONE
'Yesterday Anna gave a new ball to the child who plays football.'

In LIS free relatives, the relative clause always precedes the main clause, regardless of the syntactic role of the *wh*-sign in the main clause. In the example (a) below, the *wh*-sign WHO is the subject of the main clause predicate EXIT, while in (b) the *wh*-sign WHICH is the object of the main clause predicate SEE. In both sentences, the relative clause precedes the main clause.

rel
a. [EXAM DONE WHO] GO_AWAY BE_ABLE
'Who has taken the exam can go out.
(Branchini 2009, 104)

rel
b. [P-A-O-L-O LIKE WHICH] IX$_1$ SEE DONE
'I saw which Paolo likes.'
(Branchini 2009, 105)

3.4.4 Subject vs. object relativization

LIS relative clauses do not show a different relativisation pattern with respect to the syntactic role of the head noun in the relative clause.

Manual and non-manual markers of relativisation do not change depending on the syntactic role of the head noun with the respect to the relative clause predicate (subject, object or adjunct).

3.4.5 Displacement of relative clauses

3.4.6 Special non-manual marking

LIS displays a combination of obligatory non-manuals specifically marking the relative clause. Their distribution in the relative clause differs in the two syntactic types identified above: full relative clauses and free relative clauses.

3.4.6.1 List of non-manual markers

The non-manuals marking LIS full relative clauses are: raised eyebrows, squint eyes, and a forward head nod.

Figure 1 Non-manual marking of LIS full relative clauses

Free relative clauses are marked by the following non-manual markings: raised eyebrows and squint eyes.

Figure 2 Non-manual marking of LIS free relative clauses

3.4.6.2 The spreading domain of each non-manual marker

In full relative clauses, the non-manual markings raised eyebrows and squint eyes (glossed 'rel' in the examples) may spread over the entire relative clause reaching their maximal intensity over the sign PE, when the latter is produced at the end of the relative clause (a), or over the last sign of the relative clause when the sign PE is not produced (b).

rel
a. [CHILD++ WIN PE] TEACHER PRIZE GIVE
'The teacher gives the prize to the children who win.'
(Branchini 2014, 192)

rel
b. [CHILD WIN] TEACHER PRIZE GIVE
'The teacher gives the prize to the child who wins.'

Alternatively, raised eyebrows and squint eyes can be produced only over PE.

hn
rel
[CHILD WIN PE] TEACHER PRIZE GIVE
'The teacher gives the prize to the child who wins.'

The non-manual marking head nod is produced over the sign PE (either when it is produced at the end of the relative clause, as in the example above, or next to the head noun, as in the example below). A signing pause, an optional eye blink, and a head nod mark the end of the relative clause and the beginning of the main clause.

Spreading of raised eyebrows and squint eyes over the entire relative clause is obligatory when the sign PE is produced next to the head noun, as in the example below.

hn eb
hn
rel
[CHILD$_a$ PE$_a$ COMPETITION WIN] TEACHER PRIZE GIVE
'The teacher gave a prize to the child who won the competition.'
(recreated from Branchini 2014, 199)

In free relatives, the non-manual markings raised eyebrows and squint eyes (glossed 'rel' in the examples) obligatorily spread over

the entire relative clause. A signing pause and eye blink mark the end of the relative clause and the beginning of the main clause.

eb
rel
[EXAM DONE WHO] TODAY RELAX
'Who has taken the exam today is relaxed.'
(Branchini 2009, 104)

3.4.7 Restrictive vs. non-restrictive relative clauses

LIS distinguishes between restrictive and non-restrictive relative clauses.

Typically, restrictive relative clauses provide information which is crucial in identifying the referent head noun, which is non-specific, as in the sentence: 'The woman who speaks French works in the Italian Embassy'. On the other hand, non-restrictive relative clauses provide additional information on an already specified referent, as in the sentence: 'Laura, who speaks French, works in the Italian Embassy'.

While in LIS restrictive relative clauses the head is inside the relative clause, in LIS non-restrictive relative clauses the head is always produced outside the relative clause. More precisely, the head immediately precedes the relative clause.

While LIS restrictive full relative clauses typically display the relativisation sign PE, non-restrictive relative clauses cannot. Moreover, non-restrictive relative clauses are not marked by the 'rel' non-manual markings described for restrictive relative clauses [SYNTAX 3.4.6.1]. The non-manuals marking non-restrictive relative clauses are: an eye blink, head nod, and a signing pause at the beginning and end of the non-restrictive relative clause. The example below illustrates a non-restrictive relative clause in LIS.

hn hn
eb eb
MARIA [LAST^YEAR MEDICINE NEW FIND_OUT] PRIZE WIN
'Maria, who discovered a new medicine last year, won the prize.'
(recreated from Branchini, 2017)

As shown in the example above, the head noun MARIA precedes the time adverbial LAST^YEAR. As time adverbs sit at the beginning of the clause, this shows that the head is external to the relative clause.

Furthermore, while the head of a restrictive relative clause must be an indefinite noun, the head of a non-restrictive relative clause can be a definite referent: a proper name (a), a pronominal sign (b), a definite description (c).

hn hn
eb eb
a. MARIA [CITY ROME KNOW NOT] ARRIVE LATE
'Maria, who doesn't know the city of Rome, arrives late.'

hn hn
eb eb
b. IX_3 [SPIDER FEAR] $HOUSE_a$ $POSS_1$ COUNTRYSIDE $VISIT_a$ NEVER
'He, who is afraid of spiders, never visits my house in the countryside.'

hn hn
eb eb
c. BOYFRIEND $POSS_3$ [CITY ROME KNOW NOT] ARRIVE LATE
'Her boyfriend, who doesn't know the city of Rome, arrives late.'
(Branchini 2014, 231)

3.5 Adverbial clauses

An adverbial clause is part of a complex sentence. Although it is sentential in form, its function is adverbial. In this section, we will describe adverbial clauses expressing condition of the main event [SYNTAX 3.5.1], time [SYNTAX 3.5.2], location [SYNTAX 3.5.3] manner [SYNTAX 3.5.4], reason [SYNTAX 3.5.5], purpose [SYNTAX 3.5.6], and concession [SYNTAX 3.5.7].

3.5.1 Conditional clauses

A conditional sentence is composed of two clauses: the antecedent clause expressing a condition, and the consequent clause. The antecedent clause is syntactically dependent on the consequent clause.

Semantically, conditional clauses may be distinguished into i) factual conditionals, ii) counterfactual conditionals, iii) concessive conditionals, and iv) non-predictive/peripheral conditionals. In the following sections, each type of conditional clause, and also other less standard conditional sentences, will be described in detail.

3.5.1.1 The role of non-manual markers in conditional sentences

Inside conditional sentences, the following non-manual markers (glossed 'cond') are obligatory found: raised eyebrows, head and body movement, eye blink, and signing pause. Their occurrence and distribution in the different types of conditional clauses will be illustrated below.

3.5.1.2 Factual conditionals

In factual conditionals, the condition expressed by the antecedent (subordinate) clause is realistic and possible. The following example is a factual conditional clause in LIS.

cond
A-N-N-A STATION ARRIVE LATE TRAIN MISS
'If Anna arrives late at the train station, she will miss the train.'

3.5.1.2.1 Non-manual markers and their properties in factual clauses

The obligatory non-manual markers used to mark the antecedent clause in factual conditional clauses are: raised eyebrows (re), chin down (cd) at the end of the antecedent clause, a signing pause and eye blink between the antecedent and the consequent clause and, optionally, body lean forward (bl-f) over the antecedent clause. The consequent clause is not marked by specific non-manual markers.

The following example shows the alignment and spreading of the non-manual marking in a factual conditional clause.

cd
bl-f
re
PROTEST CONTINUE_VA_VA POLITICIAN POLICE MEET
'If the protest continues, the politicians will meet the police.'

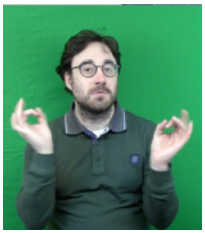
The non-manual markers used in factual conditional clauses are very similar to those used in temporal clauses [SYNTAX 3.5.2.4]. For this reason, in the absence of manual markers, a sentence like the one below might be ambiguous between a factual conditional clause and a temporal clause.

cd
bl-f
re
OUTSIDE RAIN PLAY IMPOSSIBLE_NO_WAY
‘If it rains, it is impossible to play.’
‘When it rains, it is impossible to play.’

3.5.1.2.2 Manual conditional signs in factual conditionals

Different manual signs are available to mark factual conditionals. The following list is not exhaustive of the variants used on the national territory. The more commonly used are the sign glossed IF(1) produced either as a one-handed or two-handed sign (a-b), the sign glossed IF(2) (c), the sign glossed IF(3), a variant from the northern-east city of Trieste (d), the sign glossed IF(4), a variant from the city of Turin (e), the sign glossed IN_CASE (f), and the sign glossed OCCASION (g).

a. IF(1) (one-handed sign)



b. IF(1) (two-handed sign)

c. IF(2)

d. IF(3) (Trieste)

e. IF(4) (Turin)

f. IN_CASE

g. OCCASION

Manual markers are optional. When present, they occur at the beginning of the antecedent clause and they co-occur with the obligatory non-manual markers spreading over the antecedent clause, as shown below.

cd
re
IF RAIN GO_OUT NOT
'If it rains, I don't go out.'

When the manual marker is absent, the obligatory non-manual markers alone are able to mark the sentence as a conditional clause.

3.5.1.2.3 Order of the components of the factual conditional clause

The antecedent clause always precedes the consequent clause.

cond
TOMORROW RAIN THEATRE CANCEL
'If it rains tomorrow, the performance will be cancelled.'

3.5.1.3 Counterfactual conditionals

In counterfactual conditionals, the event described in the antecedent clause is unrealistic, very unlikely, or impossible. The following example is a counterfactual conditional clause.

cond
LARA_{a} CHILD_{b} $_{a}\text{SCOLD}_{b}$ IX_{3b} ARM BREAK NOT
'If Lara had scolded the child, he wouldn't have broken his/her arm.'

3.5.1.3.1 Non-manual markers and their properties in counterfactual conditionals

The non-manuals marking counterfactual conditionals are the same used in factual conditionals: raised eyebrows (re), chin down (cd) at the end of the antecedent clause, a signing pause and eye blink between the antecedent and the consequent clause and, optionally, body lean forward (bl-f) over the antecedent clause. They only mark the antecedent clause. As in factual conditional clauses, the consequent clause is not marked by specific non-manual markers.

The example below shows the occurrence and spreading of non-manual markers in counterfactual conditional clauses.

cd
bl-f
re
IX_1 PRESIDENT FRANCE PRESIDENT$_a$ IX_a JAPAN IX_1 $_1$MEET$_a$

'If I were the French president, I would meet the Japanese president.'

3.5.1.3.2 Manual conditional signs in counterfactual conditionals

Optionally, the same manual signs used in factual conditional clauses may be employed in counterfactual conditional clauses [SYNTAX 3.5.1.2.2]. When this happens, the obligatory non-manuals marking the antecedent clause are also produced. When the manual marker is absent, the obligatory non-manual markers alone are able to mark the sentence as a conditional clause.

3.5.1.3.3 Order of the components of the counterfactual conditional clause

As in factual conditional clauses, the antecedent clause always precedes the consequent clause in counterfactual conditionals.

cond
L-U-C-A_a IX_{3a} SMOKE QUIT LIVE CONTINUE

'If Luca had quitted smoking, he would have lived longer.'

3.5.1.4 Concessive conditionals

Conditional concessive clauses, typically introduced by 'even if' in English, are a construction in which the truth of the proposition expressed by the antecedent clause does not affect the truth of the proposition expressed by the consequent clause. An example of a concessive conditional clause in LIS is provided below.

cond
RING $_3$DONATE$_1$ IX$_1$ SAME ACCEPT NOT
'Even if s/he gave me a ring, I wouldn't accept it.'

Concessive conditionals have the same structure of concessive clauses [SYNTAX 3.5.7].

3.5.1.4.1 Non-manual markers and their properties in concessive clauses

The non-manual markers used to mark concessive conditional clauses are the same employed in factual and counterfactual conditional clauses: raised eyebrows (re), chin down (cd) at the end of the antecedent clause, a signing pause and eye blink between the antecedent and the consequent clause and, optionally, body lean forward (blf) over the antecedent clause.

bl-f
cd
re
AMERICA TRIP $_3$DONATE$_1$ IX$_1$ SAME_BEFORE IX$_1$ GO NOT
'Even if they donated me a trip to America, I wouldn't go.'

3.5.1.4.2 Manual conditional signs in concessive conditionals

The same manual markers used in the antecedent of factual and counterfactual conditional clauses may be optionally employed to mark the antecedent of concessive conditional clauses [SYNTAX 3.5.1.2.2]. In addition to them, the concessive interpretation is obtained through the obligatory use of the manual markers illustrated below: SAME (a) and SAME_BEFORE (b). Other synonyms of these signs may also be employed.

a. SAME

b. SAME_BEFORE

The manual markers SAME and SAME_BEFORE are produced in the consequent clause, either before or after the subject.

cond
LIBIA IX(loc) TRIP $_3$DONATE$_1$ IX$_1$ SAME GO NOT
'Even if s/he donated me a trip to Libia, I wouldn't go.'

In the presence of the optional manual marker occurring in the antecedent clause, the obligatory non-manuals marking the antecedent clause are also produced. When the manual marker in the antecedent clause is absent, the obligatory non-manual markers alone are able to mark the sentence as a conditional clause.

3.5.1.4.3 Order of the components of the concessive conditional clause

As in factual and counterfactual conditional clauses, in concessive conditionals the antecedent clause must precede the consequent clause.

3.5.1.5 Non-predictive/peripheral conditionals

Non-predicative/peripheral conditionals have the superficial form of conditional clauses. However, the antecedent clause does not specify any condition.

cond
BOYFRIEND COME MEANING IX_3 ANGRY ANYMORE
'If your boyfriend comes, it means he's not angry anymore.'

3.5.1.5.1 Non-manual markers and their properties in non-predictive/peripheral conditionals

The non-manual markers of predictive/peripheral conditionals are the same of factual, counterfactual, and concessive conditional clauses: raised eyebrows (re), chin down (cd) at the end of the antecedent clause, a signing pause and eye blink between the antecedent and the consequent clause and, optionally, body lean forward (bl-f) over the antecedent clause.

cd
bl-f
re
IX_3 $_3INVITE_1$ IX_3 ANGRY ANYMORE
'If I invite him, he won't be angry anymore.'

Since raised eyebrows and chin down also mark polar questions, the lack of a condition linking the antecedent to the consequent clause, as well as the lack of manual conditional markers, might induce ambiguity in its interpretation between a non-predictive conditional clause and a polar interrogative [SYNTAX 1.2.1] followed by a declarative clause [SYNTAX 1.1], as in the following example.

cd
re
HUNGER IX_2 EAT PALM_UP BE_ABLE PALM_UP
'If you are hungry, you can eat.'
'Are you hungry? You can eat.'

3.5.1.5.2 Manual conditional signs in non-predictive/peripheral conditionals

The same manual markers used in the antecedent of factual, counterfactual, and concessive conditional clauses may be optionally employed to mark the antecedent of non-predictive/peripheral conditional clauses.

In the presence of the optional manual marker, the obligatory non-manuals marking the antecedent clause are also produced. When the manual marker is absent, the obligatory non-manual markers alone are able to mark the sentence as a conditional clause.

3.5.1.5.3 Order of the components of the non-predictive/peripheral conditional clause

As in factual, counterfactual, and concessive conditional clauses, in non-predictive/peripheral conditionals, the antecedent clause must precede the consequent clause:

cond
ANNA CALL$_3$ PLEASE WARN$_3$ TIME PUNCTUAL
'If you call Anna, please warn her to be on time.'

3.5.1.6 Other conditional constructions

LIS has a construction called Imperative and Declarative (IaD) [SYNTAX 1.3.9] expressing the possibility of an event, which differs in form, but not in meaning, from a conditional clause. The Declarative and Imperative is so called as it is a bi-clausal construction composed of an imperative clause [SYNTAX 1.3] followed by a declarative clause [SYNTAX 1.1]. It is marked by the following non-manual markers obligatorily spreading over the imperative clause: squint eyes (sq), raised eyebrows (re), and chin down (cd).

cd
re
sq
BEHAVE BAD PALM_UP CINEMA GO NOT
'Behave bad and you will not go to the cinema.'

3.5.2 Temporal clauses

Temporal clauses are adverbial clauses indicating a temporal relation between the event described in the main clause and the event taking place in the subordinate clause. The temporal relation may be of simultaneity (if the two events are simultaneous), anteriority (if the event of the subordinate clause takes place before the event described in the main clause), or posteriority (if the subordinate clause describes an event that takes place after the event of the main clause).

3.5.2.1 Internal structure of temporal clauses

Temporal simultaneity between the subordinate clause and the main clause is expressed either i) by juxtaposing the two clauses, or ii) through the optional use of a manual marker. When the two clauses are juxtaposed, the subordinate clause is marked with non-manual markers: raised eyebrows (re), chin down (cd), a signing pause, and, optionally, eye blinking between the two clauses.

cd
re
IX_2 $_2TEXT_1$ IX_1 DRIVE
'When you sent me the text message, I was driving.'

Sometimes, beside the non-manuals marking the subordinate clause described above, a manual marker, glossed MOMENT in the following example, may be produced.

cd
re
$_2TEXT_1$ MOMENT IX_1 SHOWER
'When you sent me the text message, I was taking a shower.'

Anteriority of the event in the subordinate clause may be expressed by the same non-manual markers used to mark simultaneity, and no manual markers.

cd
re
L-U-C-A GO_AWAY A-N-N-A CRY
'After Luca left, Anna cried.'

Alternatively, anteriority may be expressed through the employment of the manual marker glossed AFTER and the same non-manual markers used to mark simultaneity spreading over the subordinate clause.

cd
re
TEACHER GO_AWAY AFTER CHILD++ CONFUSION
'After the teacher left, the children moved around chaotically.'

Another option is to produce the manual sign DONE [LEXICON 3.3.1] after the subordinate clause predicate, and the non-manual markers spreading over the subordinate clause.

cd
re
LUCA VASE BREAK DONE IX_1 ARRIVE
'I arrived after Luca broke the vase.'

Posteriority of the event in the subordinate clause may be expressed through the use of a manual marker occurring in the main clause, as the sign glossed BEFORE in the example below, together with the same non-manual markers used in simultaneity and anteriority spreading over the subordinate clause.

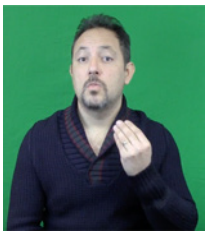
cd
re
ALARM THIEF IX BEFORE GO_AWAY
'The thief left before the alarm went on.'

Another way to express posteriority is through the use of the manual sign DONE [LEXICON 3.3.1] produced after the main clause predicate together with the same non-manuals marking simultaneity and anteriority spreading over the subordinate clause.

cd
re
IX$_1$ ARRIVE LUCA$_a$ IX$_a$ VASE BREAK DONE
'Luca broke the vase before I arrived.'

3.5.2.2 Manual signs marking subordination in temporal clauses

Different manual signs may be used to express simultaneity: WHEN (a), MOMENT (b), EXACTLY (c), and the phrases TIME NOW PE (d) and TIME NOW IDENTICAL (e) (or TIME IDENTICAL NOW).



a. WHEN

b. MOMENT

c. EXACTLY

d. TIME NOW PE

e. TIME NOW IDENTICAL

Note that these manual signs are optional. While the manual sign WHEN is produced at the beginning of the subordinate clause, the other signs are produced at the beginning of the main clause. Each manual sign is shown below with an example containing it.

cd
re
a. WHEN IX_1 PADUA ARRIVE IX_1 $_1TEXT_2$
'When I arrive in Padua, I will send you a message.'

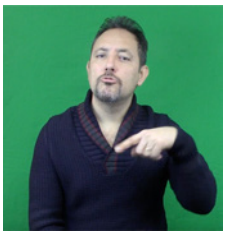
cd
re
b. $_2TEXT_1$ MOMENT IX_1 SHOWER
'When you sent me the text message, I was taking a shower.'

cd
re
c. $_3TEXT_1$ EXACTLY IX_1 SHOWER
'When s/he sent me the text message, I was taking a shower.'

cd
re
d. IX$_2$ $_2$TEXT$_1$ IX$_1$ TIME NOW PE DRIVE
‘When you sent me the text message, I was driving.’

cd
re
e. $_3$TEXT$_1$ TIME IDENTICAL NOW IX$_1$ DRIVE
‘When s/he sent me the text message, I was driving.’

The optional manual sign expressing anteriority is the sign AFTER.



AFTER

When produced, it appears at the beginning of the main clause.

cd
re
LUCA GO_AWAY AFTER ANNA CRY
‘After Luca left, Anna cried.’

LIS displays different manual signs that may be optionally used to express posteriority:

BEFORE (a), EARLIER (b), NOT_YET (c). The phrase ALREADY BEFORE (d) can also be used.

a. BEFORE

b. EARLIER

c. NOT_YET

d. ALREADY BEFORE

Each manual sign is shown below together with an example containing it.

cd
re
a. IX_2 ARRIVE IX_{1pl} BEFORE EAT DONE
'We ate before you arrived.'

cd
re
b. IX_2 ARRIVE IX_{1pl} EARLIER EAT DONE
'We ate before you arrived.'

cd
re
c. ALARM NOT_YET IX$_a$ THIEF$_a$ GO_AWAY
'The thief left before the alarm went on.'

cd
re
d. BANK CLOSE A-N-N-A MONEY TAKE ALREADY BEFORE
'Anna withdrew the money before the bank closed.'

Of these, the manual sign NOT_YET is the only one occurring inside the subordinate clause, at the end of it. All other signs are produced in the main clause, with some flexibility with respect to their position: the sign BEFORE can be produced either at the beginning or end of the main clause, or before the main clause predicate. The manual sign ALREADY BEFORE can be produced either at the end of the main clause, or be separated by other signs within the main clause predicate, as can be observed below.

cd
re
IX$_1$ CINEMA ARRIVE GIRLFRIEND ALREADY TICKET BUY BEFORE
'When I arrived at the cinema, my girlfriend had already bought the tickets.'

The sign EARLIER can be produced before the main clause predicate, or at the beginning of the main clause.

3.5.2.3 Other markers of subordination in temporal clauses

3.5.2.4 Non-manual markers in temporal clauses

The same non-manual markers are used to express all types of temporal relations (simultaneity, anteriority, and posteriority). They are composed of: raised eyebrows (re) spreading over the subordinate clause, chin down (cd) occurring at the end of the subordinate clause, a signing pause at the end of the subordinate clause and, optionally, eye blink between the two clauses. These non-manual markings are obligatory, but they are not unique to this construction, they are rather employed in different types of constructions in LIS. For example, they also mark conditional clauses [SYNTAX 3.5.1] and in the absence of

manual signs, a sentence might be ambiguous between a simultaneous temporal clause and a conditional clause.

cd
re
OUTSIDE RAIN PLAY IMPOSSIBLE_NO_WAY

'When it rains outside, it is impossible to play.'
'If it rains outside, it is impossible to play.'

3.5.2.5 Position of the temporal clause with respect to the main clause

The subordinate clause always precedes the main clause in all types of temporal clauses. The manual sign specifying the temporal relation between the two clauses typically sits in the main clause.

3.5.2.6 Simultaneous expression of the main event and the adverbial clause

To be developed.

3.5.3 Locative clauses

Locative clauses are dependent clauses specifying the location where the event predicated of in the main clause takes place. An example of a locative clause (within squared brackets) in English is the following: 'John has hidden his book [where the dog sleeps]'.

LIS expresses locative clauses through the use of relative clauses [SYNTAX 3.4].

3.5.3.1 Internal structure of locative clauses

Locative clauses in LIS take the form of a relative clause [SYNTAX 3.4].

The locative clause may contain a head noun, as HOUSE in (a), or a more generic sign expressing location, as AREA in (b). The relativisation sign PE may be optionally produced at the end of the locative clause (b) or next to the head noun (a). Its presence is, however, not compulsory, as shown in (c).

rel
a. PAST IX(loc) HOUSE PE FATHER LIVE IX(loc) NOW PARKING_LOT
'The house where my father used to live is now a parking lot.'

rel
b. FOOTBALL CHILD++ PLAY AREA PE CL(4): 'grass_grow' ANYMORE
'The grass doesn't grow anymore where the children play football.'

rel
c. PAST FATHER^MOTHER IX HOUSE LIVE IX(loc) NOW PARKING_LOT
'In the place where my parents used to live, now there is a parking lot.'

Another way to express locative clauses in LIS is through a free relative clause [SYNTAX 3.4], that is, a relative clause that, instead of displaying a head noun and the sign PE, employs a *wh*-element, like the sign WHERE in the example below.

rel
PAST IX_1 PLAY WHERE NOW CINEMA
'Where I used to play there is now a cinema.'

3.5.3.2 Manual signs marking subordination in locative clauses

As already pointed out, the same manual signs employed in relative clauses may be used to mark the subordinate clause of locative clauses. These are the sign PE optionally produced either at the end of the sentence-initial locative clause or after the head noun.

Another manual marker used in locative clauses is the sign WHERE produced at the end of the subordinate clause.

3.5.3.3 Other markers of subordination in locative clauses

To be developed.

3.5.3.4 Non-manual markers in locative clauses

The locative clause is marked by the same non-manuals marking relative clauses, namely, squint eyes (sq), raised eyebrows (re) eyeblink (eb) and head nod (hn).

The spreading domain and obligatoriness of the different non-manual markings differ. While the non-manual marker squint eyes obligatory spreads over the entire locative clause, the non-manual marking raised eyebrows appears to be optionally produced. When present, it may spread i) only over the sign PE when it surfaces at the end of the locative clause (in full relatives), as in sentence (a) below, ii) only over the *wh*-sign (in free relatives), as in sentence (b) below, or iii) over the entire locative clause, as shown in sentence (c) below. In the absence of the sign PE in full relatives, the non-manual marking raised eyebrows may be substituted by repeated head nods produced at the end of the locative clause (d). Finally, a head nod and an eyeblink separates the locative clause from the main clause. The following sentences reproduce the spreading domain of the different non-manuals marking locative clauses in LIS.

hn
re
sq eb
a. YESTERDAY IX$_{1+2}$ MEET AREA PE LEFT SHOP SHOEMAKER EXIST
'There is a shoemaker shop near the place where we met yesterday.'

hn
re
sq eb
b. PAST IX$_1$ PLAY WHERE NOW CINEMA
'Where I used to play there is now a cinema.'

hn
re
sq eb
c. IX$_1$ EAT DONE POINT PE IX$_1$ COMPUTER FORGET IX$_1$
'I forgot the computer where I ate.'

hn hn
sq eb
d. PAST FATHER^MOTHER IX HOUSE LIVE IX(loc) NOW PARKING_LOT
'Near the house where my parents used to live there is now a parking lot.'

3.5.3.5 Position of the locative clause with respect to the main clause

As a general rule, the locative clause precedes the main clause. However, we should report the possibility of topicalizing the main clause at the left periphery of the locative clause.

re sq
COMPUTER IX_1 FORGET POINT PE PAST IX_1 EAT DONE

'I forgot the computer where I ate.'

3.5.3.6 Simultaneous expression of the main event and the adverbial clause

To be developed.

3.5.4 Manner clauses

Manner clauses are dependent clauses expressing the way in which the event in the main clause is realized. An example of a manner clause (within squared brackets) in English is the following: 'Carla sewed the trousers [as her mother taught her]'. In this sentence, the sentence-final manner clause, which is introduced by the subordinating morpheme 'as', clarifies the way in which Carla carried out the event of sewing.

3.5.4.1 Internal structure of manner clauses

Manner meaning in LIS can be expressed by two different structures. They may be dependent clauses in the form of a free relative clause [SYNTAX 3.4]. As such, they are dependent on a main clause and they contain the *wh*-element HOW surfacing at the end of the manner clause, but no head noun, as in the sentence below.

rel
IX_2 $_2$EXPLAIN$_1$ HOW RICE IX_1 COOK DONE

'I cooked the rice the way you explained to me.'

A manner meaning can also be expressed by an adverbial dependent clause introduced by a subordinating sign, as the sign IDENTICAL in the sentence below.

IX$_2$ HOUSE BUILD IDENTICAL TIME PAST
'You built the house as they used to do in the past.'

3.5.4.2 Manual signs marking subordination in manner clauses

Manner clauses are marked by the subordinating *wh*-morpheme HOW obligatorily produced at the end of the manner clause when they have the structure of a free relative clause (a). They are introduced by a subordinating manual sign, such as IDENTICAL (b), PE (c) or AS_IF (d), when they are adverbial dependent clauses.

rel
a. IX$_2$ $_2$EXPLAIN$_1$ HOW RICE IX$_1$ COOK DONE
'I cooked the rice the way you explained to me.'

b. IX$_2$ HOUSE BUILD IDENTICAL TIME PAST
'You built the house as they used to do in the past.'

c. CARLA$_a$ IX$_a$ SEW IX$_a$ PE PAST MOTHER TEACH$_{3a}$
'Carla sews as her mother taught her to.'

d. IX$_3$ BEHAVE AS_IF HOUSE POSS(G)$_3$
'He behaves as if the house was his own.'

3.5.4.3 Other markers of subordination in manner clauses

To be developed.

3.5.4.4 Non-manual markers in manner clauses

Non-manual markers are only present when the manner meaning is expressed by free relative clauses. In these sentences, the non-manuals are the same marking free relative clauses, namely, squint eyes (sq), raised eyebrows (re), head nod (hn) and eye blink (eb).

The non-manual marking squint eyes is obligatorily produced over the entire manner clause, raised eyebrows is optionally produced over the sign HOW. The non-manuals head nod and eyeblink are obligatorily produced at the end of the manner clause and before the main clause.

eb
hn
sq
IX$_2$ EXPLAIN HOW RICE IX$_1$ COOK DONE

'I cooked the rice the way you explained to me.'

3.5.4.5 Position of the manner clause with respect to the main clause

When the manner meaning is expressed by a free relative clause, this obligatorily precedes the main clause (a). When the manner meaning is expressed by a simple adverbial clause, this follows the main clause (b).

rel
a. IX$_2$ EXPLAIN HOW RICE IX$_1$ COOK DONE

'I cooked the rice the way you explained to me.'

b. IX$_3$ $_3$SPEAK$_1$++ IX$_1$ IDENTICAL IX$_1$ CHILD

'He speaks to me as if I was a child.'

3.5.4.6 Simultaneous expression of the main event and the adverbial clause

To be developed.

3.5.5 Reason clauses

Reason clauses (also called causal clauses) are subordinate clauses that typically give a reason for the event expressed in the main clause, as in the following sentence: 'I called you because I missed you'. Here, the reason clause is introduced by 'because'.

The reason clause may also provide the reason for the belief the speaker has towards the event expressed in the main clause. For example, by uttering the sentence 'It (must have) snowed, since the street is white', the speaker does not assert that the reason of snowing is the whiteness of the street, but (s)he is inferring that it snowed from the fact that the street is white.

Reason clauses have something in common with purposes clauses [SYNTAX 3.5.6], since they both express some sort of explanation for the event expressed in the main clause. This is why in some languages,

including Italian (but not LIS), they can be introduced by the same marker (*perché* 'so that', 'because').

(i) Ti ho chiamato perché andassi in banca
(I) you have called so-that (you) go(SUBJ) to bank
'I called you so that you would go to the bank.'

(ii) Ti ho chiamato perché eri andato in banca
(I) you have called because (you) had gone to bank
'I called you because you had gone to the bank.'

Sentence (i) expresses the purpose of the event of calling and the verb in the purpose clause is subjunctive. Sentence (ii) expresses the reason that triggered the event of calling and the verb in the reason clause is indicative. Notice that in sentence (i) the event expressed in the purpose clause (going to the bank) is unrealized at the time of the main event (the calling), whereas the event in the reason clause is realized in (ii). This suggests a way to distinguish the two types of clauses: the event expressed by the purpose clause cannot precede the event in the main clause, while this restriction does not apply to reason clauses.

Still, in Italian there can be cases where the same clause can be interpreted either as a reason clause or as a purpose clause. This happens in the following sentence where the non-finite clause can express either the reason why someone went to the store or the purpose of the visit to the store.

È andato al supermercato per fare la spesa
(he) is gone to.the store to-do the shopping
'He went to the store to do shopping'
'He went to the store because he wanted to do shopping'

3.5.5.1 Internal structure of reason clauses

Reason clauses in LIS are introduced by the sign glossed REASON, as in the following sentence.

GIANNI CAR DRIVE CL(closed 5): 'car_bump_and_stop' REASON FUEL EXHAUST
'Gianni was driving, his car bumped and stopped because there was no fuel left.'

Reason clauses have the make-up of finite declarative clauses, as shown by the fact that the verb can be inflected. For example, in the following reason clause the verb SNOW is reduplicated to indicate continuative aspect.

TRAM ARRIVE LATE REASON SNOW++ CL(5): 'snow_accumulate'
'The tram arrived late because it continued to snow, and the snow accumulated.'

Reason clauses can indicate the relation of causation between the event in the reason clause and the event in the main clause, as in the example above, where the snowing caused the delay of the tram. However, they can also indicate the reason why the speaker has a certain belief. For example, the following sentence was elicited as a comment to a visual narrative in which a person stayed with a swimsuit in the snow and subsequently got sick.

BOY IX STUPID REASON BOAST. OUTSIDE SNOW COLD BODY NAKED ONLY SWIMSUIT. BOAST AFTER WORSE SICK
'That boy is stupid because he is a braggart. It was cold and snowing but he stayed outside with only a swimsuit. He was acting cool, but later he got sick.'

In this sentence, the reason clause can be naturally interpreted as indicating the reason why the speaker thinks that the boy is stupid, namely the fact that he behaved as a braggart in the snow.

3.5.5.2 Manual signs marking subordination in reason clauses

The sign REASON obligatorily introduces reason clauses in LIS. However, there is another way to express causality in LIS and this involves the underspecified interrogative sign $\mathrm{Q}_{\mathrm{artichoke}}$ discussed in [SYNTAX 1.2.3.2] and illustrated in the following picture.

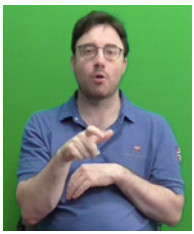
$\mathrm{Q}_{\mathrm{artichoke}}$

The following is an example of a sentence expressing causation and involving $_{\text{Q}_{\text{artichoke}}}$.

CAR CL(closed 5): 'car_bump_and_stop' $_{\text{Q}_{\text{artichoke}}}$ ENGINE_OIL EXHAUST
'Why did the car stop? Because the engine oil finished.'

However, the sign $_{\text{Q}_{\text{artichoke}}}$ does *not* play the role of introducing a subordinate clause in this structure, which is more akin to a question-answer pair ('Why did the car stop? Because the engine oil finished').

The sign glossed REASON is very similar to the *wh*-sign corresponding to 'why', glossed as WHY. Note that the manual parameters are the same, however the two signs differ in terms of absence/presence of specific non-manuals. The sign REASON introducing a reason clause is articulated with neutral facial expressions (a), whereas the sign interrogative pronoun WHY is obligatorily produced with the non-manuals typical of *wh*-questions [SYNTAX 1.2.3.1] (b).



a. REASON
'Because'

b. WHY
'Why'

The reader should therefore be careful not to confuse the two signs. The following sentence shows the *wh*-sign WHY included in an interrogative sentence ('Why did Maria leave the house?') followed by the

answer ‘to meet up with a friend’. That this sentence is a question-answer pair is indicated by the non-manual marking, namely lowered eye-brows (typical of *wh*-signs) spreading from the beginning to the sign WHY and raised eye-brows on the answer.

wh _____ re
MARIA HOUSE GO_OUT WHY.FRIEND MEET
‘Why did Maria leave the house? To meet up with a friend.’

Conversely, the sign REASON functions as a subordinating conjunction introducing a subordinate reason clause. As shown in the example below, it is not accompanied by any special non-manual marking.

MARIA HOUSE GO_OUT REASON FRIEND MEET
‘Maria left the house to meet up with a friend.’

3.5.5.3 Other markers of subordination in reason clauses

To be developed.

3.5.5.4 Non-manual markers in reason clauses

No specific non-manual marker associated to reason clauses has been identified, apart from eye-blink, which is a common marker of the boundary between matrix and subordinate clause.

3.5.5.5 Position of the reason clause with respect to the main clause

In LIS the reason clause follows the main clause. Cases where the reason clause precedes the main clause (as in the English sentence ‘Because you are tired, you should go home now’) are not accepted by our informants.

3.5.5.6 Simultaneous expression of the main event and the adverbial clause

A major strategy to express causation in LIS seems to be sequential, with the clause that expresses the causer event following the clause that expresses the caused event. However, thanks to the availabili-

ty of two manual articulators, in principle the causer event and the caused event can be expressed simultaneously rather than sequentially. In fact, the simultaneous strategy can be used in classifier predicates [MORPHOLOGY 5.1], as in the following example where the dominant hand describes the fall of the man and the non-dominant hand describes the fall of the motorbike.

MOTORBIKE$_a$ MAN$_b$
dom: CL(V): 'move_to_a' CL(V): 'ride_bike' CL(V): 'man_fall'
n-dom: CL(3): 'be_at_a' CL(3): 'ride_bike' CL(3):'bike_fall'
'The man got on the motorbike, he rode it for a while until he fell off from it.'

However, an important proviso is necessary here. Although the classifier predicate can be used to describe a situation where a man falls because his motorbike does, its meaning is less specific than this. For example, a translation like 'The man got on the motorbike and rode it. The man and motorbike both fell' cannot be excluded. Therefore, classifier predicates cannot be considered structures specialized for causation.

We can conclude that the presence of a structure dedicated to the expression of causation (the clause introduced by the sign REASON) does not prevent the language to express causation in other forms, including classifier predicates and question-answer pairs with the interrogative signs corresponding to 'why'.

3.5.6 Purpose clauses

Purpose clauses are subordinate clauses that specify the goal or the purpose of the action expressed in the main clause, as in the following examples containing respectively a finite and a non-finite purpose clause: 'I woke him up early so that he could arrive on time' and 'I woke up early to arrive on time'.

3.5.6.1 Internal structure of purpose clauses

Purpose clauses in LIS are typically introduced by the sign glossed GOAL, as in the following sentence where the purpose clause conveys the information that the reason why Maria goes to the store is that she wants to buy food.

MARIA STORE GO GOAL FOOD BUY++
'Maria goes to the store in order to buy food.'

Purpose clauses introduced by the sign GOAL can have the make-up of finite declarative clauses, as shown by the fact that they can contain a specification of tense or aspect. For example, the purpose clause in the following sentence contains the aspectual marker TO_BE_DONE (the sign glossed TO_BE_DONE derives from the verb 'must' but is used as an aspectual marker here.

GIANNI MECHANIC CAR BRING TO_BE_DONE GOAL OVERHAUL
'Gianni will take his car to the mechanic, so that he gets it serviced.'

The presence of specialised signs introducing purpose and reason clauses (GOAL and REASON respectively) reduces the chances of ambiguity between these two types of clauses in LIS. For example, (a) and (b) below are not ambiguous. They express a reason meaning and a purpose meaning respectively.

a. GIANNI_{a} IX_{a} CAR FUNCTION NOT. LOOK_FOR MECHANIC REASON WANT FIX HOLIDAY LEAVE
'Gianni's car does not work. He is looking for a mechanic because he wants to have it fixed and leave for the holidays.'

b. GIANNI CAR FUNCTION NOT. LOOK_FOR MECHANIC GOAL FIX READY CAN HOLIDAY LEAVE
'Gianni's car does not work. He is looking for a mechanic so that it can be fixed and he can leave for the holidays.'

3.5.6.2 Manual signs marking subordination in purpose clauses

The only sign that could be identified as a marker of subordination in LIS purpose clauses is GOAL. It belongs to the purpose clause, as indicated by consistent eye-blink after the last sign of the matrix clause and before the sign GOAL itself.

3.5.6.3 Other markers of subordination in purpose clauses

To be developed.

3.5.6.4 Non-manual markers in purpose clauses

No specific non-manual marker associated to purpose clauses has been identified.

3.5.6.5 Position of the purpose clause with respect to the main clause

In LIS the purpose clause naturally follows the main clause. Cases where the purpose clause precedes the main clause (as in the English sentence 'To stop him, we told him a lie') are not produced by our informants.

3.5.6.6 Simultaneous expression of the main event and the adverbial clause

A major strategy to express the goal of an action in LIS is sequential, where the clause that expresses the goal follows the clause that expresses the main event. However, thanks to the availability of two manual articulators, the goal and the main event might be expressed simultaneously rather than sequentially. A hypothetical example is a situation where someone jumps in order to grasp a grape and, although the two actions temporally overlap, grasping is the goal of jumping. In this situation, in principle, in a classifier predicate construction [MORPHOLOGY 5.1] one hand might express the jumping action, while the other hand might simultaneously express the grasping action. Still, the sequential strategy seems to be preferred to the simultaneous strategy, as illustrated by the following example where the action of jumping and the action of grasping are expressed by the two hands one after the other.

MAN$_a$ IX$_a$ GRAPE
dom: CL(V): 'jump'
n-dom: GRASP
'The man jumped to grasp the grapes.'

Further research is needed to understand if the preference for sequentiality when expressing the purpose of the action is limited to these types of examples or is more general, possibly expressing the fact that the goal is conceived as temporally coming after the event performed to reach it, even if the two events are simultaneous in reality.

3.5.7 Concessive clauses

By using a concessive clause, a speaker states that something happens in spite of a state of affairs. Concessive clauses are expressed in English with subordinators such as *although* (among others) ('Although Rose hates pineapple, she has eaten my cake').

Concessive clauses are semantically (and often superficially) similar to concessive conditionals [SYNTAX 3.5.1.4]. The main difference between them is that, by using a concessive conditional, one does not entail that the antecedent must be true. For example, the concessive conditional sentence 'Even if Rose hated pineapple, she would eat my cake' does not imply that Rose hates pineapple.

However, the sentence 'Although Rose hates pineapple, she has eaten my cake', a genuine concessive, *does* imply that Rose hates pineapple at the moment of utterance and, nonetheless, she is willing to eat my cake made of pineapple fruit.

While there is clear evidence that concessive conditionals are subordinate clauses, further research is needed to establish the exact syntactic status of LIS constructions that are functionally equivalent to concessive clauses. In this section, we list a variety of ways in which the concessive meaning can be expressed in LIS.

3.5.7.1 Internal structure of concessive clauses

A common way to express the concessive meaning is through the sign glossed SAME, as in the following sentence.

sq
re
GIANNI$_a$ IX$_a$ SICK SAME JOB PARTICIPATE
'Although Gianni is sick, he goes to work.'

This sentence is a biclausal structure, as revealed by the change in non-manual-marking (raised eyebrows and squint eyes over the sign GIANNI$_a$ IX$_a$ SICK). The same type of analysis can be proposed for the following sentence, in which the change of non-manual-marking signals the transition from the first clause (MAN SHORT) to the second one.

re
MAN SHORT IX$_3$ SAME BASKETBALL PLAY
'Although that man is short, he plays basketball.'

3.5.7.2 Manual signs marking subordination in concessive clauses

The sign SAME helps the transmission of the concessive meaning. It is often produced after the concessive clause, as the first (a) or second (b) sign of the main clause.

sq
re
a. MAN BLIND SAME PASTA COOK BE_ABLE
'Although the man is blind, he can cook pasta.'

re
b. L-U-C-A_a IX_a CAT ALLERGY IX_b MARIA SAME CAT BUY
'Although Luca is allergic to cats, Maria buys one.'

We can say that the sign SAME belongs to the sentence-final clause expressing the state of affairs against which the concessive clause is contrasted, on the basis of the spreading of the non-manual markings. In the examples above, the non-manual markings only spread over the sentence-initial concessive clause, but not over the sign SAME.

The sign SAME can also be produced at the end of the main clause, as shown below.

re
L-U-C-A CAT ALLERGY MARIA CAT BUY SAME
'Although Luca is allergic to cats, Maria buys one.'

However, the presence of the sign SAME in concessive clauses is not obligatory, as shown by the following sentences in which an abrupt change in non-manual-marking signals the transition from the clause that expresses a concession to the following clause.

re
a. MAN SHORT PLAY BASKETBALL IX_3 BE_ABLE
'Although that man is short, he can play basketball.'

re
b. IX_a GABRIELE IX_a MONTH MARCH IX_{3a} ENGAGED WEDDING$_b$ POSS$_1$
$_a$COME$_b$
'Although Gabriele is busy in March, he will come to my wedding.'

Superficially, concessive clauses are very similar to concessive conditionals, as shown by the concessive clause (a) and the concessive con-

ditional (b) reported below. However, while the non-manual markings spreading over the concessive conditional are stronger, they seem to be less intense over the adverbial concessive clause.

.....re
a. MARIA PINEAPPLE HATE SAME EAT ALL
'Even though Maria hates pineapple, she has eaten all (the cake).'

re
b. MARIA IX_a PINEAPPLE HATE CAKE $POSS_1$ EAT ALL SAME
'Even if Maria hated pineapple, she would eat all my cake.'

It should be noted that another way to express the concessive meaning is through adversative coordination [SYNTAX 3.1]. In the following sentences, the sign BUT establishes a contrast between the first and the second clause.

a. L-U-C-A_a IX_a CAT ALLERGY EXIST BUT IX_b MARIA BUY CAT
'Luca is allergic to cats, but Maria buys one.'

b. WOMAN ARM++ EXIST.NOT BUT BE_ABLE PUT_SIGNATURE PAINT DANCE ONLY FEET PALM_BACK
'This woman does not have arms, but she can put a signature, dance, and paint only with her feet.'

In adversative coordination, the sign BUT and the sign SAME (with the meaning 'just the same') can co-exist. The sign SAME can either follow the sign BUT (a) or be produced at the end of the sentence-final clause (b).

a. WOMAN ARM++ EXIST.NOT BUT SAME PUT_SIGNATURE PAINT DANCE ONLY FEET PALM_BACK
'This woman does not have arms but, nonetheless, she can put a signature, dance, and paint only with her feet.'

b. L-U-C-A_a IX_a CAT ALLERGY EXIST BUT MARIA CAT BUY SAME
'Luca is allergic to cats, but Maria buys one just the same.'

Notice that the optional position of the sign SAME at the end of the sentence-final clause is also found in concessive conditionals, as shown in the example repeated below.

re
MARIA IX_a PINEAPPLE HATE CAKE $POSS_1$ EAT ALL SAME
'Even if Maria hated pineapple, she would eat all my cake.'

3.5.7.3 Other markers of subordination in concessive clauses

To be developed.

3.5.7.4 Non-manual markers in concessive clauses

A clear change in non-manual marking is systematically used to create a contrast between the sentence-initial clause expressing a concession and the sentence-final clause against which it is contrasted, roughly consisting in raised eyebrows (re) and, optionally, squint eyes (sq).

It should be noticed that the three types of constructions expressing the concessive meaning (concessive clauses, concessive conditionals and adversative coordination) differ in the presence and intensity of the non-manual markings. While concessive conditionals are strongly marked by raised eyebrows over the conditional clause, concessive clauses are less strongly marked by raised brows and, optionally, by squinted eyes. Adversative coordination lacks the presence of specific and consistent non-manual marking.

3.5.7.5 Position of the concessive clause with respect to the main clause

The concessive clause must precede the main clause. This is also the case in concessive conditionals, while, in adversative coordination, the two clauses may be inverted without a change in meaning, as shown in the examples below.

a. L-U-C-A_a IX_a CAT ALLERGY EXIST BUT IX_b MARIA BUY CAT
'Luca is allergic to cats, but Maria buys one.'

b. MARIA IX_a CAT BUY BUT L-U-C-A_b IX_b ALLERGY CAT EXIST
'Maria buys a cat, but Luca is allergic to them.'

A final property differentiating adversative coordination on the one hand and concessive clauses and concessive conditionals on the other hand, is the possibility to produce the first clause of the construction is isolation. Only the sentence-initial clause of an adversative coordinate construction can be produced on its own as shown below:

L-U-C-A IX$_3$ CAT ALLERGY EXIST
'Luca is allergic to cats.'

The impossibility to produce the sentence-initial concessive clause in isolation, the obligatory non-manual markings spreading over it and the impossibility to invert the order of the two clauses seem to suggest that the functional equivalent of concessive clauses (as well as concessive conditionals) in LIS are subordinate clauses.

3.5.7.6 Simultaneous expression of the main event and the adverbial clause

To be developed.

3.6 Comparative clauses

A comparative construction involves three things: a scale, which is usually encoded as a gradable predicate, and two objects: the first and the second term of comparison.

In this section, we will describe how comparatives are expressed in LIS, and we will show that degrees can be overtly realized as points in the signing space (i.e. *loci*).

The adjectives described in the chapter are all open scale gradable adjectives: they can be defined as *gradable* because they are compatible with the degree adverb VERY, and they are *open scale* because they are not compatible with adverbs like COMPLETELY.

In LIS, comparative clauses there are two main strategies to convey *more*-comparatives. The first strategy, exemplified below, is an analytic form in which the lexical comparative marker MORE is used, which is a lexical sign with an invariant form. By POS we indicate a morpheme that refers to a *point in the scale*, in this case height.

MAN TALL$_{_\alpha}$POS$_\beta$ WOMAN MORE
'The woman is taller than the man.'
(recreated from Aristodemo 2017, 16)

The second strategy, exemplified below, is a synthetic form, in which a morpheme that we gloss ICONIC_MORE is used. The initial and final place of articulation of ICONIC_MORE are the loci associated with the first term of comparison (in this case MAN) and a higher position in the scale.

MAN TALL$_{\alpha}$POS$_{\beta}$ WOMAN TALL.$_{\beta}$ICONIC_MORE$_{\gamma}$
'The woman is taller than the man.'
(recreated from Aristodemo 2017, 16)

The analytic form can be used with all the kind of open scale gradable adjectives. However only a particular class of open scale gradable adjectives allows the synthetic form; they are iconic adjectives that meet two crucial requirements: (i) they are all classifier signs of the Size and Shape type [MORPHOLOGY 5.2] (although many of them, like the one in the example, may have become lexicalized signs), (ii) the movement is always perpendicular to the orientation of the whole hand. Examples are TALL (a), BIG (b), DEEP (c), shown in the videos below.

a. TALL
(recreated from Aristodemo 2017, 14)

b. BIG
(recreated from Aristodemo 2017, 14)

c. DEEP
(recreated from Aristodemo 2017, 14)

Less-comparatives behave in a similar way: the comparison can be expressed by the analytic form using the lexical sign LESS, as in (a), or by a synthetic form glossed ICONIC_LESS, as in (b).

a. MAN TALL$_{\alpha}$POS$_{\gamma}$ WOMAN LESS
'The woman is less tall than the man.'
(recreated from Aristodemo 2017, 18)

b. MAN TALL$_{\alpha}$POS$_{\gamma}$ WOMAN TALL.$_{\gamma}$ICONIC_LESS$_{\beta}$
'The woman is less tall than the man.'
(recreated from Aristodemo 2017, 18)

The synthetic form ICONIC_LESS can be used only with the special class of adjectives that allow the synthetic form ICONIC_MORE.

From a syntactic point of view, comparatives involve coordination. In fact, it is possible to insert the conjunction BUT between the two clauses of the construction.

a. GIANNI TALL$_{-\alpha}$POS$_{\beta}$ BUT MARIA TALL.$_{\beta}$ICONIC_MORE$_{\gamma}$
'Gianni is tall, but Maria is taller (than him).'
(Aristodemo 2017, 33)

b. GIANNI TALL$_{-\alpha}$POS$_{\beta}$ BUT MARIA MORE
'Gianni is tall, but Maria is taller (than him).'
(Aristodemo 2017, 33)

The two parts are not equivalent, because the first contains the adjective in its neutral form, while the second one contains a comparative form. The inversion of the two sentences is not allowed.

It is possible to anaphorically refer to a visible or overt degree thanks to a pronoun that points to the locus in which the degree was previously established, as can be seen in the example below.

GIANNI TALL$_{-\alpha}$POS$_{\beta}$ MARIA TALL.$_{\beta}$ICONIC_MORE$_{\gamma.}$ IX$_{\beta}$ ONE METRE SEVENTY. IX$_{\gamma}$ ONE METRE EIGHTY
'Maria is taller than Gianni. This one (Gianni's degree) is 1 metre 70 and that one (Maria's degree) is one metre 80.'
(based on Aristodemo 2017, 19)

The pronoun IX$_{\beta}$ refers to the degree of Gianni's height, while IX$_{\gamma}$ refers to the degree of Maria's height. Once the scale is available, any degree on the scale can be used to establish a new locus that can be the antecedent for an anaphoric relation.

Iconic degrees and scales can be introduced also with non-iconic adjectives by using the modifier A_BIT, followed by ICONIC_MORE or ICONIC_LESS. In A_BIT ICONIC_MORE (a) the hand moves upward, while in A_BIT ICONIC_LESS (b) the hand moves downward.

a. A_BIT $_{\alpha}$ICONIC_MORE$_{\beta}$
'A bit more.'
(recreated from Aristodemo 2017, 40)

b. A_BIT $_{\alpha}$ICONIC_LESS$_{\beta}$
'A bit less.'
(recreated from Aristodemo 2017, 40)

A_BIT ICONIC_MORE and A_BIT ICONIC_LESS can be used also with highly abstract adjectives, making their degrees visible, as in the example below.

GIANNI INTELLIGENT MARIA A_BIT $_{\alpha}$ICONIC_LESS$_{\beta}$
'Gianni is smart, Maria is a bit less smart (than him)'
(recreated from Aristodemo 2017, 41)

3.7 Comparative correlatives

Comparatives correlatives are bi-clausal constructions as exemplified below.

sq sq
re re
a. RUN++ SWEAT++
'The more you run, the more you sweat.'
(recreated from Geraci 2007, 52)

re
sq
b. RUN++ SWEAT MOST
'The more you run, the more you sweat.'
(adapted from Geraci 2007, 52)

LIS signers can use two constructions to express the meaning of a comparative correlative. The first one is symmetrical, as shown in (a) above, the other is asymmetrical, as shown in (b) above. In both cases, the verb of the first clause (RUN) is reduplicated. The two options differ in that the verb of the second clause (SWEAT) is reduplicated only in (a), while in (b) a marker of quantity, corresponding to the English '*more*', appears post-verbally. In both (a) and (b) are present special non-manuals: squint eyes and raised eyebrows. These non-manuals are spread differently in the two variants: in (a) they equally spread over the two clauses, while in (b) they only spread on the first clause. Finally, in (a) both clauses are possible in isolation, while in (b) only the second clause is possible in isolation.

Despite their possible symmetric structure, the two clauses are not reversible: if the order of the two clauses is reversed, the meaning is not preserved.

Comparative correlatives in LIS are sensitive to the type of predicate or modifier involved in the construction. The following examples show this feature.

a. GIANNI RUN++ SWEAT++
'The more Gianni runs, the more he sweats.'
(Geraci 2007, 71)

b. GIANNI RUN CONTINUE_VA_VA++, SWEAT++
'The longer Gianni runs, the more he sweats.'
(Geraci 2007, 71)

c. SEA DEEP$_{[prolonged]}$, COLD INCREASE++
'The deeper the sea, the colder the water.'
(Geraci 2007, 71)

d. HAIR LONG$_{[prolonged]}$, TIME DRY MORE
'The longer the hair, the more time to dry them.'
(Geraci 2007, 71)

In LIS comparative correlatives, while atelic verbs trigger reduplication of the verb, like in (a) and (b) above, stative verbs yield a different verbal morphology, namely intensification, whereby the movement of the sign for the predicate or modifier is different from its citation form: it is articulated slower and the muscles are more tensed (c, d). In this, asymmetric variants behave like symmetric ones, as can be seen in (d): stative predicates do not show reduplication, but intensification.

Wh-phrases, which typically occur at the end of the sentence [SYNTAX 1.2.3.5], appear in sentence-final position also in comparative correlatives, as shown in the following example.

STUDY++ LEARN LESS WHO
'Who is such that, the more he studies the less he learns?'
(Geraci 2007, 74)

Information on Data and Consultants

The descriptions in this chapter are based on the references below. The linguistic data illustrated as images and video clips have been checked through acceptability judgments and have been reproduced by Deaf native-signing consultants.

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4 The noun phrase

Summary 4.1 Determiners. – 4.2 Possessive phrases. – 4.3 Numerals. – 4.4 Quantifiers. – 4.5 Adjectives. – 4.6 Multiple noun phrase constituents.

The noun phrase is a syntactic domain revolving around a nominal head. A noun phrase can include the head noun (a noun or pronoun) alone or the head noun accompanied by other elements (nominal modifiers). The head noun can be modified by several elements: determiners [SYNTAX 4.1], possessives [SYNTAX 4.2], numerals [SYNTAX 4.3], quantifiers [SYNTAX 4.4], and adjectives [SYNTAX 4.5]. It can also be modified by a clause (see the section on relative clauses, [SYNTAX 3.4].

4.1 Determiners

Determiners are functional elements that modify the noun. Being functional, they constitute a closed class and lack descriptive content. The lexical properties of these elements are illustrated in [LEXICON 3.6].

In this section, we consider determiners as a category including articles [SYNTAX 4.1.1] and demonstratives [SYNTAX 4.1.2].

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4.1.1 Articles

In their contexts of use in LIS, articles are optionally produced. Definite articles are realised as pointing signs with a relaxed position [LEXICON 3.6.1], whereas indefinite articles are articulatory similar to cardinal ONE [LEXICON 3.6.2].

It should be noted that articles are not independent items and cannot be used in isolation to answer questions. As shown in the examples in the next sections, both definite and indefinite articles must co-occur with a noun.

4.1.1.1 The position of the article

In this section, we observe the distribution of definite and indefinite articles in LIS. Note that both of them are optionally produced in their contexts of use [LEXICON 3.6.1]; [LEXICON 3.6.2].

When used, definite articles usually appear in postnominal position. In the example below, the article IX(def) follows the noun YOUNG.

YOUNG$_a$ IX(def)$_a$ RUN QUICK
'The boy is running quickly.'

Note that noun and article are produced in the same area of the signing space, and hence show spatial agreement.

When another nominal modifier accompanies the head noun, such as an adjective (OLD in the example below), the definite article appears after it, at the end of the noun phrase.

FURNITURE$_a$ OLD IX(def)$_a$ CHANGE NEED
'The old furniture must be replaced.'
(adapted from Bertone 2007, 60)

A less common option is the reduplication of the article, for instance IX$_a$ MAN IX$_a$. In this construction, two co-indexed pointing signs are produced, one before and the other after the noun. These two elements can be functional equivalent, and hence produce a genuine case of reduplication, or they can carry out two different functions, and hence instantiate a case of demonstrative reinforcer construction (for more details on this construction see [SYNTAX 4.1.2.2]).

Indefinite articles in LIS usually occur before the noun. In the example below, the article ONE(indef) precedes the noun DEAF.

ONE(indef) DEAF IX$_1$ MEET
'I met a deaf guy.'

As for the postnominal position, judgments are not uniform. According to some signers, when the sign ONE appears after the noun, it functions as a cardinal numeral.

BOOK ONE $_2$CL(flat open 5): 'give_book'$_1$
'Give me one book.' (recreated from Bertone 2007, 146)

According to other signers, when the sign ONE is found in postnominal position and it is associated with tremoring motion, it functions as an indefinite determiner.

BOOK ONE(indef)$_{[\text{tremoring}]}$ $_2$GIVE$_1$
'Give me a book.'
(Bertone 2007, 146)

This particular articulation can also be used to express a free choice reading ('any book').

4.1.1.2 Simultaneous manual articulation

The fact of having two independent manual articulators allows signers to realise two different items simultaneously. So, in some cases, the noun and its modifiers (for example adjective or numeral) are articulated with the dominant hand and, at the same time, the article is produced with the non-dominant hand.

In the example below, noun and article are articulated simultaneously: specifically, the noun CHILD and the nominal modifier HAIR BLACK are expressed by the dominant hand, whereas the definite article IX(def) is simultaneously expressed by the non-dominant hand (see the discussion on pointer buoys in [PRAGMATICS 2.2.3].

re sq rs: child
dom: CHILD$_a$ HAIR BLACK WALK DAD GO
n-dom: IX$_a$---------- WALK
'The kid with black hair left whining and went to his dad.'

4.1.1.3 Non-manual marking

Definite articles may be accompanied by special facial expressions conveying definiteness [PRAGMATICS 1.2]. They typically include raised eyebrows, chin up, contracted cheeks, and mouth slightly open. In some cases, squint eyes may also be produced.

Figure 1 Non-manuals marking definiteness

It has been observed that these non-manuals are not compulsory. Their use can vary across signers and across contexts. When produced, they highlight the fact that the referent has already been mentioned in the discourse. As for their distribution, these non-manuals can: i) be omitted, ii) co-occur with the definite article only, or iii) co-extend over the whole noun phrase.

Indefinite articles are usually accompanied by facial expressions conveying indefiniteness [PRAGMATICS 1.3], such as backward-tilted head and mouth-corners down.

Figure 2 Non-manuals marking indefiniteness

4.1.1.4 Articles expressed by non-manual marking only

In their contexts of use, both definite and indefinite articles are not obligatory in LIS. However, when they are omitted, they are replaced by obligatory non-manuals (the ones described in [SYNTAX 4.1.1.3]).

In the example below, the pointing sign IX is not produced and the noun MAN is accompanied by obligatory non-manuals marking definiteness (here labelled as 'def').

def
MAN UMBRELLA TAKE
'The man took the umbrella.'

The same pattern holds for indefinite articles. When the manual sign is not present, the noun must be accompanied by non-manuals marking indefiniteness (here labelled as 'indef').

indef
WOMAN CL(G): 'woman_come'
'A woman came to me suddenly.'

4.1.2 Demonstratives

Unlike articles, demonstratives are obligatorily produced in their contexts of use in LIS. Demonstratives are pointing signs directed toward a specific point in space and realised with a tense movement [LEXICON 3.6.1].

Demonstratives have a double usage: they can be combined with a noun, and hence function as nominal modifiers [LEXICON 3.6.1], but they can also be used as pronouns [LEXICON 3.7.1]. An example of demonstrative functioning as nominal modifier is shown in the discourse stretches below.

wh
A: IX_2 BUY $\text{Q}_{\text{artichoke}}$
B: BOOK IX(dem)
'What did you buy?' 'That book.'

An example of demonstrative functioning as pronoun is shown in the discourse stretches below.

wh
A: IX_2 BUY $\text{Q}_{\text{artichoke}}$
B: IX(dem)
'What did you buy?' 'That one.'

This last example demonstrates that demonstratives can be used in isolation to answer questions.

4.1.2.1 The position of the demonstrative

Demonstratives in LIS usually appear in postnominal position. In the example below, the deictic demonstrative IX(dem) follows the noun PHONE.

PHONE IX(dem) WORLD MODIFY
'That mobile phone has changed the world.'

A less common option is the reduplication of the demonstrative. In this case, as exemplified below, one demonstrative is produced at the beginning of the noun phrase and the other at the end of it.

IX(dem)_{a} BOOK NEW TWO IX(dem)_{a} POSS_{1}
'These two new books are mine.'
(Bertone 2007, 85)

A similar construction is the demonstrative reinforcer construction [SYNTAX 4.1.2.2].

Another possibility is to articulate noun and demonstrative simultaneously: the former with the dominant hand and the latter with the non-dominant hand.

dom: MAN GO_AWAY
n-dom: IX(dem)
'That man is leaving.'

4.1.2.2 Demonstrative reinforcer construction

The demonstrative reinforcer construction combines three items: noun, demonstrative, and locative. The locative element acts as reinforcer and provides additional information on the exact location of the referent(s).

In the example below, two pointing signs are produced, one before and the other after the head noun (MAN). From an articulatory perspective, the two pointing signs do not look alike: the former is quickly produced, whereas the latter is characterised by a more marked articulation.

PIETRO IX(loc)$_a$ MAN IX(dem)$_a$ BE_FAMILIAR
'Pietro knows that man over there.'
(adapted from Bertone 2007, 157)

It has been observed that the two pointing signs carry out different linguistic functions: the prenominal one functions as locative (reinforcer), whereas the postnominal one functions as demonstrative. The different status of these two elements is confirmed by plural inflection. In this respect, demonstratives and locatives differ from each other in that the former can be pluralised, while the latter cannot. As shown in the example below, the postnominal pointing sign allows for pluralisation and therefore functions as demonstrative, whereas the prenominal pointing sign does not and therefore it functions as locative.

PIETRO IX(loc)$_a$ MAN IX(dem)$_{arc\text{-}a}$ BE_FAMILIAR
'Pietro knows those men over there.'

Alternatively, the locative item can follow the demonstrative (a) or be simultaneously articulated with the non-dominant hand (b).

a. PIETRO MAN IX(dem)$_{arc\text{-}a}$ IX(loc)$_a$ BE_FAMILIAR
'Pietro knows those men over there.'

b. dom: PIETRO MAN IX(dem)$_{arc\text{-}a}$ BE_FAMILIAR
n-dom: IX(loc)$_a$
'Pietro knows those men over there.'

The demonstrative reinforcer construction is compatible with the anaphoric demonstrative PE as well.

SUITCASE$_a$ PE$_a$ IX(loc)$_a$ POSS$_1$
'That suitcase over there is mine.'

4.1.2.3 Non-manual marking

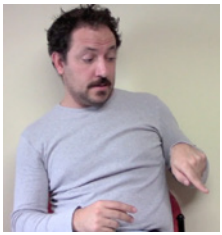
The non-manuals marking definiteness described for articles (raised eyebrows, chin up, contracted cheeks, and mouth slightly open, as discussed in [SYNTAX 4.1.1.3] are usually also found with demonstratives. This is because both classes of determiners are definite in nature.

If the direction of the eye-gaze (here labelled as 'eg') coincides with that of the demonstrative, the signer emphasises that the referent is physically present in the extra-linguistic context. In the exam-

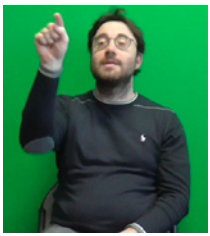
ple below, the eye-gaze is pointed downward, in the same direction indicated by the demonstrative IX(dem). This alignment between eye-gaze and demonstrative suggests that the referent (PEN) is physically present in the scene of the interaction.

eg
PEN IX(dem) NEED IX_1
'I need this pen.'

Deictic demonstratives refer to someone or something present in the surrounding extra-linguistic context, which might be more or less distant from the signer. The proximal or distal specification is often signalled by non-manuals. For example, proximity can be marked by body posture and/or half-closed eyes, as in (a), while distality can be marked by eye opening and chin up, as in (b).



a. $IX(dem)_{[proximal]}$



b. $IX(dem)_{[distal]}$

4.1.2.4 Anaphoric usage

Anaphoric demonstratives are used to refer to already-mentioned referents. Therefore, they rely on the linguistic context. In LIS, the anaphoric demonstrative is usually expressed by the sign PE (for more details on this sign see [LEXICON 3.6.1]).

Like its deictic counterpart, the anaphoric demonstrative in LIS appears in postnominal position. In the example below, the sign PE is used to express anaphoric reference to an already-mentioned project and appears after the noun (PROJECT).

PROJECT$_a$ PE$_a$ IX$_{1\ 3a}$GIVE$_1$_AUX PERSONAL_GROWTH
'That project boosted my personal growth.'

4.2 Possessive phrases

The possessive phrase is a syntactic construction involving two elements: a possessor (i.e. someone who possesses something) and a possessee (the possessed entity). A distinction that it is important to keep in mind is that between attributive (a) and predicative (b) possession. Examples in LIS of these two constructions are provided below.

a. MARIA CAR POSS$_3$ COMFORTABLE
'Maria's car is comfortable.'

b. CAR PE MARIA POSS$_3$
'This car is Maria's.'

Attributive possession is included within the noun phrase [SYNTAX 4], while predicative possession does not combine with a noun, but predicates something about it. This section is devoted to attributive possessive phrases only.

4.2.1 Ways of expressing the possessive relation in the noun phrase

A possessive relation in LIS can be expressed as follows: i) by means of attributive possessive pronouns, or ii) by juxtaposition of possessor and possessee.

4.2.1.1 Attributive possessive pronouns

The possessive pronouns that occur within attributive possessive phrases in LIS can be realised with two different handshapes: POSS(G) and POSS(5) [LEXICON 3.7.3]. In both cases, the sign is directional, meaning that it moves toward the locus in space associated with the possessor. The two types of possessives differ in terms of use as well. When

the possessor is animate (e.g. WOMAN, CHILD, DOG), the preferred option is POSS(G), be it a case of alienable (a) or inalienable possession (b).

a. PIETRO CAR POSS(G)$_3$ FUNCTION WELL
'Pietro's car works well.'

b. PIETRO MOTHER POSS(G)$_3$ SICK
'Pietro's mother is sick.'

On the other hand, when the possessor is inanimate (e.g. ITALY, COMPANY, SCHOOL), signers typically use POSS(5), as shown below.

ITALY FOOD POSS(5)$_3$ DELICIOUS
'Italian food is delicious.'

4.2.1.2 Possessive markers

To be developed.

4.2.1.3 Juxtaposition

In some cases, it is possible to omit the possessive pronouns. As a result, the attributive possession construction consists in the juxtaposition of possessor and possessee.

For example, 'Maria's car' can be expressed by combining the signs MARIA and CAR in sequence.

MARIA CAR BREAK
'Maria's car is broken.'

Apparently, the presence or absence of the possessive pronoun does not cause a change in meaning.

The strategy of juxtaposition is also used with inalienable possession, such as body parts (GIRAFFE NECK, 'giraffe's neck') and kinship relations (PIETRO MOTHER, 'Pietro's mother').

4.2.2 The position of the possessive pronoun

Possessive pronouns contained in possessive phrases in LIS are typically produced in postnominal position, i.e. after the possessee. In the example below, POSS$_3$ follows the sign CAR, that is the possessed noun.

CAR POSS$_3$ COMFORTABLE
'His/her car is comfortable.'

If the possessor is expressed by a noun (e.g. MARIA, PRESIDENT, CAT), the possessive construction typically surfaces in the following order: possessor (MARIA), possessee (CAR), possessive pronoun (POSS$_3$).

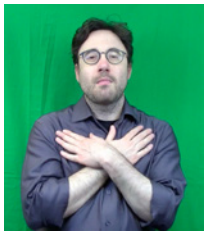
MARIA CAR POSS$_3$ COMFORTABLE
'Maria's car is comfortable.'

4.2.3 Agreement with the possessor

Possessive pronouns show manual agreement with the possessor. During their production, they are directed toward the locus in space associated with the referent functioning as possessor. The screenshots below show the spatial agreement between possessor and possessive pronoun. As shown by the indexes associated with the glosses, the two signs are co-referential.

PIETRO$_a$ POSS$_{3a}$
'Pietro's'

Note that such manual agreement is visible when the possessor is realised by a sign articulated in neutral space. If the possessor is represented by a body-anchored sign, such as MARIA below, spatial agreement does not occur.



MARIA POSS$_3$
'Maria's'

In this case, the possessive pronoun shows spatial agreement with an arbitrary locus in space associated with the body-anchored sign.

4.2.4 Agreement with the possessed

To be developed.

4.2.5 Possessive phrases with the possessed elided

In particular discourse contexts, the possessee might represent shared knowledge. In these cases, LIS allows the possibility to omit the possessee. This is illustrated in the two examples below, in which the possessee CAR is omitted since it can be retrieved from the context.

a. MARIA POSS$_3$ COMFORTABLE
'Maria's is comfortable.' (talking about cars)

b. POSS$_3$ COMFORTABLE
'His/hers is comfortable.' (talking about cars)

It is interesting to note that when the possessee is absent, the signer might help the interlocutor retrieve it through specific non-manual cues: i) squint eyes, which signal that the information is known by the addressee, as in (a) above, and ii) eye gaze, which indicates that the possessee is present in the extralinguistic context, as in (b) above.

4.3 Numerals

Numerals are nominal modifiers used to indicate the number of entities that are referred to. In LIS, there are three different types of numerals: cardinal, ordinal, and distributive numerals [LEXICON 3.10.1]. This section discusses the distribution of numerals within the nominal domain, with a special focus on cardinals, the most studied numeral class.

4.3.1 The position of the numeral

The distribution of cardinals in the LIS nominal domain appears quite flexible because they can be found both in prenominal and postnominal position. For example, the cardinal THREE can appear before the noun CAKE, as in (a), or after it, as in (b).

a. MARIA BRING THREE CAKE
'Maria brought three cakes.'

b. IX MARIA BRING CAKE THREE. SEE IX(loc)
'Maria brought three cakes, here they are.'

In some cases, the different positions of the cardinal can convey different interpretations [SYNTAX 4.3.3].

A less common pattern involves the reduplication of the cardinal, before and after the noun, as in the example below.

THREE CAKE THREE
'Three cakes'

4.3.2 Floating numerals

A floating numeral is a numeral that does not appear in its canonical position since it is not close to the noun it modifies. In other words, there is a split between the noun and the numeral. This syntactic construction is attested in LIS.

To illustrate, consider the noun phrase BOOK THREE. The separation between these two elements can be observed in a sentence with topicalisation [PRAGMATICS 4.2], namely a sentence in which a topical constituent accompanied by marked non-manuals is preposed to a sentence-initial position. As shown in the example below, the noun (BOOK)

is topicalised at the beginning of the sentence and the related cardinal (THREE) is stranded in a non-adjacent position, after the verb.

top
BOOK IX$_1$ WANT THREE
'I want three books.'

If the noun phrase also includes an adjective, this accompanies the topicalised noun, rather than the stranded cardinal. The example below shows the distribution of the adjective RED and the cardinal THREE with respect to the noun to which they both refer.

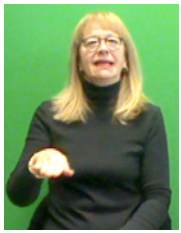
top
BOOK RED IX$_1$ WANT THREE
'I want three red books.'

4.3.3 Definite and indefinite reading

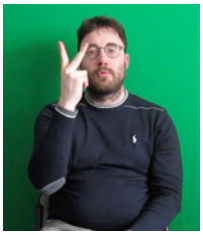
The distribution of cardinals in LIS is influenced by information structure [PRAGMATICS 4.2]. In that respect, it is important to distinguish two distinct cases: i) first-mentioned referents, namely entities that are introduced for the first time into the discourse and constitute new-discourse information and ii) already-mentioned referents, namely entities that have already been mentioned in the discourse and constitute old-discourse information. The noun phrases associated with first-mentioned referents receive an indefinite interpretation, whereas the noun phrases associated with already-mentioned referents receive a definite interpretation.

For LIS, it has been observed that when a cardinal is included in an indefinite nominal expression, it can appear either before or after the noun. When it occurs in a definite nominal expression, it must appear after the noun.

Therefore, if a signer is introducing new referents in the discourse, the cardinal can appear either before or after the noun. In the example below, the first-mentioned referents are two children: both prenominal cardinal (a) and postnominal cardinal (b) are acceptable in this context.

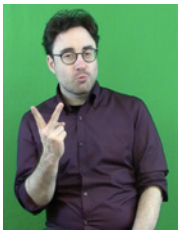
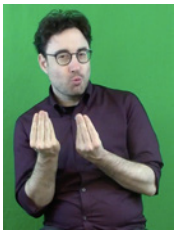


a. TWO CHILD
'Two children' (indefinite reading)
(recreated from Mantovan 2017, 173-4)



b. CHILD TWO
'Two children' (indefinite reading)
(recreated from Mantovan 2017, 173-4)

On the contrary, if a signer is talking about already-mentioned referents, the cardinal is obligatorily postnominal. Below we can see that when the two children are mentioned again in the discourse, they receive a definite reading, which is conveyed through the articulation of the cardinal TWO after the noun CHILD.

CHILD TWO CL(flat closed 5): 'be_at'
'The two children' (definite reading)
(recreated from Mantovan 2017, 173-4)

As the example above shows, the sequence noun + cardinal conveying a definite reading is compatible with the presence of a whole-entity classifier, which defines the position in space of the already-mentioned referents.

Another difference between the two semantic interpretations is represented by non-manuals. As we can see in the examples above, cardinals associated with an indefinite reading are usually articulated with backward-tilted head and raised eyebrows, whereas those associated with a definite reading are usually articulated with squint eyes, lowered eyebrows, and chin bent downward.

4.3.4 Numeral incorporation

In some cases, cardinal and noun are not conveyed through two distinct lexical signs, rather they come together to form a single sign. This phenomenon is known as numeral incorporation [LEXICON 3.10.1.1].

Numeral handshapes (usually from 1 to 5, in some cases from 1 to 10) are combined with movement, location, and orientation of a root. The possible roots, namely signs that can be modified to accommodate a numeral handshape, are nouns [LEXICON 3.1], pronouns [LEXICON 3.7], and classifiers [MORPHOLOGY 5]. Three illustrative examples are provided below: the noun YEAR (a), the first-person plural pronoun $\text{IX}_{1\text{pl}}$ (b), and the whole-entity classifier for upright person (c).

a. YEAR^FOUR
'Four years'

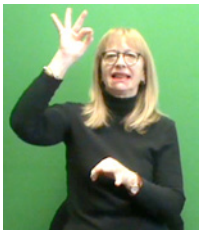
b. $\text{IX}_{1\text{pl}}$^FOUR
'The four of us'

c. CL(4): 'come'
'Four people approaching'

4.3.5 Measure phrases

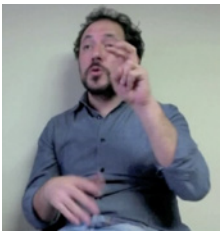
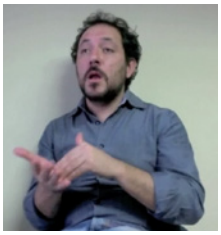
A Measure Phrase is a construction including a measure noun, namely a noun referring to time, capacity, weight, length, temperature, or currency.

In LIS, when cardinals are included in Measure Phrases, they show a special distributional pattern in that they always occur prenominally. Therefore, they always appear before the measure noun. In the following examples, cardinal THREE precedes METRE, cardinal TWO precedes KILOGRAMME, and cardinal TWO^HUNDRED THOUSAND precedes TIME.



a. THREE METRE
'Three metres'

b. TWO KILOGRAMME
'Two kilogrammes'

c. TWO^HUNDRED THOUSAND TIME
'Two hundred thousand times'
(based on Mantovan 2017, 170)

4.4 Quantifiers

While numerals specify exact numbers [LEXICON 3.10.1], quantifiers indicate the non-numeric amount of entities that are referred to [LEXICON 3.10.2]. This section discusses the distribution of quantifiers within the nominal domain.

4.4.1 The position of the quantifier

Although some variability can be found, the most frequent position for quantifiers in LIS is after the noun. Below, we can see some examples showing the postnominal distribution of these nominal modifiers: the universal quantifier ALL (a), the distributive quantifier EACH (b), the existential quantifier MANY (c), and the negative quantifier NOBODY (d) follow the noun they quantify.

a. PERSON++ ALL ORIGIN SICILY
'All the people come from Sicily.'

b. STUDENT EACH VIDEO RECEIVE DONE
'Each student received the video.'

neg
c. TODAY STUDENT MANY COME NOT
'Today lots of students did not come.'

neg
d. EXAM PASS STUDENT NOBODY
'No student passed the exam.'

In contrast to the other quantifiers, there is a preference for producing the negative quantifier NOBODY together with the modified noun in sentence-final position.

If a quantifier co-occurs with other nominal modifiers, such as adjectives and possessives, it tends to appear at the end of the nominal expression. In the examples below, we can see that the quantifier ALL(unspread 5), a variant of ALL(G) [LEXICON 3.10.2], follows the noun and the possessive in (a) and follows the noun and the adjective in (b).

a. COMPUTER POSS_1 ALL(unspread 5) BREAK
'All my computers are broken.'

neg
b. PEN RED ALL(unspread 5) FUNCTION NOT
'All the red pens do not work.'

4.4.2 Floating quantifiers

Quantifiers do not necessarily appear close to the noun they modify. Sometimes they are separated from the noun phrase they belong to: when this happens, they are called 'floating quantifiers'. This syntactic construction is attested in LIS.

Let us consider the nominal expression STUDENT ALL. In its canonical position, the quantifier ALL occurs close to the noun STUDENT, in postnominal position.

STUDENT ALL EXAM PASS BE_ABLE
'All the students can pass the exam.'

In related sentences, the quantifier ALL can be floated to three different discontinuous positions: it can appear between the object and the lexical verb (a), between the lexical verb and the modal (b), and after the modal in sentence-final position (c).

a. STUDENT EXAM ALL PASS BE_ABLE

b. STUDENT EXAM PASS ALL BE_ABLE

c. STUDENT EXAM PASS BE_ABLE ALL

Interestingly, there are minimal pair sentences that have different nuances of meaning according to the syntactic status of the quantifier. For example, consider the two sentences below.

top
a. FRIEND $POSS_1$ ALL DEAF
'All my friends are deaf.'
(recreated from Brunelli 2011, 54)

top
b. FRIEND $POSS_1$ ALL DEAF
'My friends are all deaf.'
(recreated from Brunelli 2011, 54)

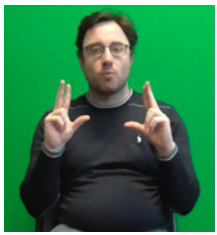
The quantifier ALL appears in its canonical position within the nominal expression in (a), while it falls outside the noun phrase and hence behaves as floating quantifier in (b). A close look at the non-manuals used in the two sentences helps detect this difference: when used as regular quantifier, ALL falls within the scope of the non-manuals

marking the noun phrase (a); when used as floating quantifier, ALL is not accompanied by such non-manuals and it is separated from the noun phrase by an intonational break (b).

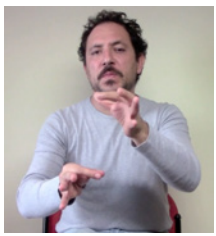
4.5 Adjectives

An adjective occurring within a noun phrase is an attributive adjective [LEXICON 3.4.1]. This means that it functions as an attribute of the noun and modifies it.

Adjectival modification can be expressed in different ways: i) lexically, e.g. the sign NEW in (a), ii) with a classifier, e.g. SASS(F): 'round_long' in (b), and iii) non-manually, e.g. open mouth (om) co-occurring with a noun expresses the concept of 'big', 'large' in (c). These three options are illustrated below.



a. CAR NEW
'New car'

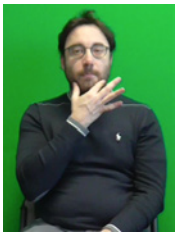


b. DRINKING_GLASS SASS(F): 'round_long'
'Flute glass'

om
c. BRIDGE
'Big/long bridge'

For the sake of simplicity, in this section we especially focus on the distribution of independent lexical adjectives like NEW in (a) above.

Lexical adjectives can be articulated on the signer's body (a) or in the neutral space (b) [LEXICON 3.4.1].



a. BEAUTIFUL

b. BIG

The distinction between body-anchored and non-body-anchored adjectives is relevant in terms of agreement. Agreement between noun and adjective is usually reflected by the fact that these two signs are articulated in the same location in the neutral space. In most cases, overt noun-adjective agreement is not compulsory, hence both body-anchored and non-body-anchored adjectives can maintain their location. However, in

marked cases and coordination between two nominal expressions, the two adjectival classes behave differently. On the one hand, non-body-anchored adjectives (like BIG) must shift from a default location to a specific point in the neutral space, the one in which the noun is localised.

bl-left bl-right
HOUSE$_a$ NEW$_a$ HOUSE$_b$ BIG$_b$ AVAILABLE ANYMORE
'The big house and the new house are no longer available.'

On the other hand, body-anchored adjectives (like BEAUTIFUL), which cannot modify their place of articulation, must be accompanied by a body lean and/or head tilt directed toward the location of the noun.

ht-left ht-right
bl-left bl-right
PAINTING$_a$ BEAUTIFUL PAINTING$_b$ UGLY SELL DONE
'The beautiful painting and the ugly painting were sold.'

From the semantic point of view, there are different classes of adjectives. The most common ones are those conveying: quality, size, shape, colour, and provenance. In some cases, the semantic category of adjectives has an influence on their distribution with respect to the noun and/or other adjectives [SYNTAX 4.5.4]. This section is intended to provide information about the distribution of adjectives with respect to the noun [SYNTAX 4.5.1]; [SYNTAX 4.5.2]; [SYNTAX 4.5.3] and other adjectives [SYNTAX 4.5.4].

4.5.1 Prenominal vs. postnominal adjectives

Considering the distribution of an attributive adjective with respect to the noun it modifies, the most frequent pattern in LIS is: noun + adjective. This distribution holds for provenance, colour, shape, size, and quality adjectives, as shown in the examples below. The provenance adjective GERMAN (a), the colour adjective RED (b), the shape adjective ROUND (c), the size adjective BIG (d), and the quality adjective BEAUTIFUL (e) follow the noun they modify.

a. WOMAN GERMAN IX(dem) IX$_1$ COMMUNICATE IMPOSSIBLE
'It is impossible for me to talk with that German woman.'

b. BOOK RED COST SASS(flat closed L): 'little'
'The red book is cheap.'

c. CANTEEN TABLE ROUND EXIST
'In the canteen, there is a round table.'

d. IX$_1$ DREAM HOUSE BIG
'I dream of a big house.'

e. TRAVEL AMERICA IX(loc) EXPERIENCE BEAUTIFUL
'My travel to the States was a beautiful experience.'

Other types of adjectives, such as OTHER, NEXT, and LAST, show the same preference for a postnominal distribution.

IX$_1$ WAIT SUMMER NEXT
'I am looking forward to the next summer.'

Although they do not constitute the most frequent pattern, some cases of prenominal adjectives (adjective + noun) are occasionally observed. They are almost exclusively quality adjectives. Here we provide an example with BEAUTIFUL.

TRAVEL AMERICA IX(loc) BEAUTIFUL EXPERIENCE
'My travel to the States was a beautiful experience.'

Sometimes, the prenominal distribution in LIS might be reminiscent of Italian word order. For example, the Italian adjective *ex* is always prenominal (Ita. *la mia ex fidanzata*, 'my ex girlfriend'). As shown below, the same distribution is found with the sign EX in LIS.

EX GIRLFRIEND CITY MOVE
'My ex-girlfriend moved to another city.'

4.5.2 Symmetric adjectives

As mentioned before, some quality adjectives can either precede or follow the nominal head (BEAUTIFUL EXPERIENCE or EXPERIENCE BEAUTIFUL). According to our informants, there is no significant difference in meaning between these two distributional patterns.

4.5.3 Reduplicated adjectives

In signing discourse, a lexical adjective might occasionally be reduplicated, being articulated both prenominally, and postnominally. This is exemplified below with the adjective OTHER.

MUST OTHER JOB OTHER
'I had to find another job.' (Mantovan 2017, 118)

Notice that reduplication of adjectives does not induce any difference in meaning.

4.5.4 Ordering restrictions among adjectives

Sometimes, two or more attributive adjectives co-occur within the same noun phrase, establishing a complex nominal expression. The relative order of multiple adjectives in LIS appears to be sensitive to the semantic class they belong to. For the sake of simplicity, we take into consideration the distribution of the following semantic classes of independent lexical adjectives: provenance, colour, size, and quality.

When a provenance adjective and a colour adjective co-occur, the most common relative order is: provenance + colour (for example, CHINA RED).

VASE CHINA RED
'Red Chinese vase
(Bertone 2009, 17)

It should be noted that some signers prefer to express provenance with a possessive phrase (CHINA POSS, for more details on this construction see[SYNTAX 4.2], rather than an independent adjective (CHINA). In this case, the sign order tends to be reversed: the colour adjective precedes the possessive construction expressing provenance.

VASE RED CHINA $POSS_3$
'Red Chinese vase'

When a size adjective and a colour adjective co-occur, the most common relative order is: colour + size (for example, RED BIG).

VASE RED BIG
'Big red vase' (recreated from Bertone 2007, 78)

When a size adjective and a quality adjective co-occur, the most common relative order is: size + quality (for example, BIG OLD).

VASE BIG OLD
'Old big vase' (recreated from Bertone 2007, 78)

To sum up, the unmarked order of LIS attributive adjectives is: (noun +) provenance + colour + size + quality.

4.6 Multiple noun phrase constituents

Nominal expressions have the potential to host several nominal modifiers. When different types of modifiers co-occur in LIS, their distribution can be quite flexible, but it is never random.

This section illustrates the most frequent sign order patterns observed in complex nominal expressions including multiple modifiers, such as determiners [LEXICON 3.6], cardinal numerals [LEXICON 3.10.1.1], and attributive adjectives [LEXICON 3.4.1].

4.6.1 Prenominal modifiers

As reported in the previous sections, most nominal modifiers in LIS preferably occur postnominally. However, some of them can be produced before the noun. This is the case of: i) some quality adjectives [SYNTAX 4.5.1], ii) the reinforcer element in the demonstrative reinforcer construction

[SYNTAX 4.1.2.2], and iii) some cardinal numerals [SYNTAX 4.3.3]. For the sake of comparability, the glosses of the relevant examples are repeated below: (a) shows a prenominal adjective (BEAUTIFUL), (b) a prenominal reinforcer element (IX), and (c) a prenominal cardinal (TWELVE).

a. TRAVEL AMERICA IX(loc) BEAUTIFUL EXPERIENCE
'My travel to the States was a beautiful experience.'

b. PETER IX(loc)$_a$ MAN IX(dem)$_a$ BE_FAMILIAR
'Peter knows that man over there.'

c. MARIA BRING THREE CAKE
'Maria brought three cakes.'

In the example below, we show an indefinite complex nominal expression containing a prenominal cardinal (THREE). The sign order is cardinal + noun + adjective.

om
IX$_1$ SEE THREE DOG BLACK
'I suddenly saw three black dogs.'

4.6.2 Postnominal modifiers

LIS shows a preference for postnominal modifiers. In this section, we observe how multiple postnominal modifiers co-occurring in the same nominal expression are distributed.

Considering indefinite nominal expressions, there are two unmarked orders: noun + adjective + cardinal, as shown in (a), and noun + cardinal + adjective, as shown in (b).

a. om
IX$_1$ SEE DOG BLACK THREE
'I suddenly saw three black dogs.'

b. om
IX$_1$ SEE DOG THREE BLACK BEAUTIFUL
'I suddenly saw three beautiful black dogs.'

As for definite nominal expressions, there are two unmarked orders: noun + adjective + cardinal + demonstrative, as shown in (a), and noun + cardinal + adjective + demonstrative, as shown in (b).

a. CAT RED THREE IX(dem)$_{arc}$ POSS$_3$
'These three red cats are his.'

b. CAT THREE RED IX(dem)$_{arc}$ POSS$_3$
'These three red cats are his.'

To summarise, in complex nominal expressions, the relative order between adjectives and cardinals seems quite flexible. On the other hand, demonstratives tend to appear in the most peripheral position.

Information on Data and Consultants

The descriptions in these sections are based on the references below. The linguistic data illustrated as images and video clips have been checked through acceptability judgments and have been reproduced by Deaf native-signing consultants.

Authorship Information

Lara Mantovan

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5 The structure of adjectival phrase

Summary 5.1 Intensifiers and other modifiers. – 5.2 Arguments. – 5.3 Adjuncts.

An adjectival phrase functions as a modifier of the noun [SYNTAX 4.5]. The head of this syntactic construction is an adjective [LEXICON 3.4]. In this chapter, we show that the adjectival head can be modified both manually and non-manually [SYNTAX 5.1], it can select arguments of different types [SYNTAX 5.2], and it can be modified by adjuncts [SYNTAX 5.3].

5.1 Intensifiers and other modifiers

Adjectives can be divided into two categories: gradable and ungradable. The former can express different degrees of a given quality. For instance, the sign COLD in LIS is gradable because it can be used to describe different degrees of temperature: very cold, pretty cold, a bit cold, etc. Adjectives of this kind can occur in comparative or superlative constructions. On the contrary, ungradable adjectives cannot express different degrees of a given quality. For instance, the sign DEAD cannot vary in intensity or degree. Adjectives of this kind cannot occur in comparative or superlative constructions.

In this section, we see which strategies can be used to modify gradable adjectives in LIS.

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5.1.1 Manual modifiers

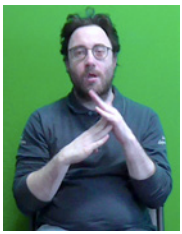
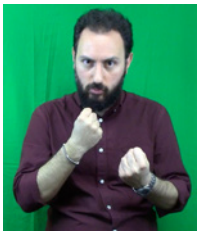
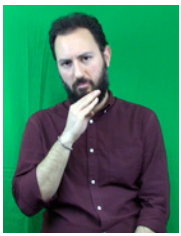
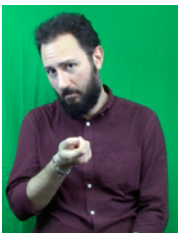
In LIS, gradable adjectives can be modified by adding a manual sign that directly indicates the intended degree. The preferred order is adjective followed by its manual modifier. In the adjectival phrase shown below, the adjective BEAUTIFUL is followed by its modifier QUITE.

PAINTING BEAUTIFUL QUITE
'A quite beautiful painting'

The modifier QUITE is typically used to indicate a moderate degree which is perceived as satisfactory. This sign is accompanied by the following non-manuals: furrowed eyebrows, lips protrusion, and sideward head tilt.

Other signs that can combine with adjectives, specifying their intensity or degree, are listed below. Like QUITE, these modifiers preferably follow the adjective. For the sake of clarity, the order of presentation follows a hypothetical scale from more to less.

Table 1 List of modifiers that can occur with gradable adjectives

EXTREMELY	STRONG	VERY
		
quite	so_so	a_bit
		

Note that the degree of intensification can be further specified by the co-occurring non-manuals.

5.1.2 Modifications of manual signs and non-manual modifiers

The degree or intensity of the adjective can be encoded through the simultaneous modification of the sign for the adjective. This can be done by modifying its manual articulation and/or by adding specific non-manual markers simultaneously occurring with it. In LIS, intensive and approximative modifications can be observed. In what follows, we present the manual and non-manual strategies conveying these meanings.

The intensive modification is used to express a high degree on the semantic scale of the adjective. The form of the adjectival sign is usually modified in the movement component: i) it can be slower, and slightly hold at the beginning of the articulation, and ii) it can be larger or restricted. If the adjective is a one-handed sign in its citation form, the non-dominant hand may become active to copy the dominant hand. Such phonological addition is another strategy to reflect intensive meaning. The non-manuals that are usually adopted to convey intensification are furrowed eyebrows (fe) and wide-open eyes (we). To illustrate these manual and non-manual strategies, compare the citation form of the adjective STRONG (a) with its intensified version (b).

a. STRONG

we
fe
b. STRONG
'Very strong'

To express a high degree of intensification, the beginning of the sign might be characterized by a long tense hold and closed eyes (ce), as shown below.

ce we
GOOD
'Very good'

A special case that needs to be mentioned is the sign BEAUTIFUL. Apparently, this is the only adjective in LIS whose form can be modified by a manual bound morpheme to convey intensive meaning. For more details, see [MORPHOLOGY 2.1.1].

On the other hand, the approximative modification is used to express a low degree on the semantic scale of the adjective. It usually

affects the movement component of the sign, making it look restricted and more relaxed. If the adjective is a two-handed sign in its citation form, the non-dominant hand may undergo weak hand drop [PHONOLOGY 3.1.4]. Such phonological reduction is another strategy to reflect approximative meaning. The non-manuals that are usually adopted to convey approximation are squint eyes (sq) and sometimes raised eyebrows (re). To illustrate these manual and non-manual strategies, compare the citation form of the adjective MISCHIEVOUS (a) with its approximative version (b).

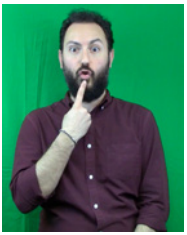
a. MISCHIEVOUS

sq
re
b. MISCHIEVOUS

'Sort of mischievous'

5.1.3 Iteration and stacking

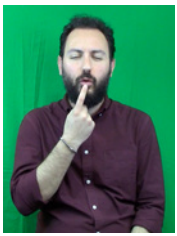
Adjectives within adjectival phrases can be modified not only by intensive or approximative modifiers [SYNTAX 5.1.2], but also by qualitative modifiers such as those specifying the shade of colour adjectives. Again, manual and/or non-manual strategies can be used. For example, different shades of red can be conveyed. A bright shade can be expressed by articulating the sign RED with raised eyebrows and wide-open eyes (a), or by adding a manual modifier such as BRIGHT, marked by the same non-manuals (b).



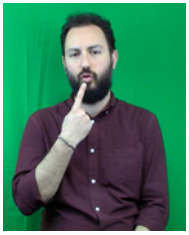
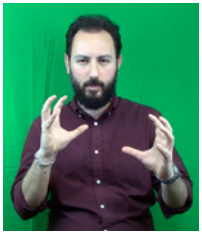
re
we
a. RED
'Bright red'

re
we
b. RED BRIGHT
'Bright red'

A dark shade of red can be expressed by articulating the sign RED with furrowed eyebrows and squint eyes (a), or by adding a manual modifier such as DARK, marked by the same non-manuals (b).



sq
fe
a. RED
'Dark red'

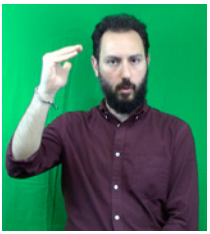
sq
fe
b. RED DARK
'Dark red'

Other non-manual and manual modifiers that can combine with colour adjectives are those conveying attenuative meaning. For more details, see [MORPHOLOGY 2.1.1.3] and [MORPHOLOGY 2.1.2.2].

It is worth noting that, for each kind of modification, non-manual and manual modifiers are not in complementary distribution. Indeed, they can be combined together to reinforce the intended meaning (brightness, darkness, or attenuation).

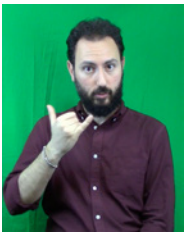
5.1.4 Degree comparatives

Since gradable adjectives can vary in degree, they can enter degree comparative constructions [SYNTAX 3.6]. Before going into details, it is important to make a distinction between two classes of gradable adjectives. Some of them are SASS [MORPHOLOGY 5.2] and represent the degree of the property iconically: for example, the adjective TALL maps height onto the signing space. The higher the extended arm, the higher the referred entity.



TALL

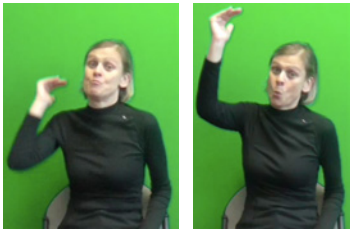
Other adjectives cannot encode this information iconically. For instance, the articulation of the adjective INTELLIGENT cannot map the degree of smartness onto the signing space.



INTELLIGENT

The distinction between these two adjectival classes is relevant to the realisation of degree comparatives. Gradable adjectives with iconic mapping (like TALL) allow two strategies: an analytic form that consists in the articulation of the lexical comparative marker MORE (a) or a synthetic form in which the adjective incorporates a morpheme expressing the degree iconically (here glossed as ICONIC_MORE) (b).

a. MORE
(based on Aristodemo, Geraci 2018, 691)

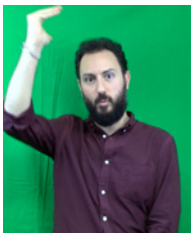


b. TALL.ICONIC_MORE
'Taller'
(based on Aristodemo, Geraci 2018, 691)

For more details on comparative constructions, see [SYNTAX 3.6].

Note that the comparative marker MORE included in the analytic construction may occur with some variant forms. As for the synthetic construction, ICONIC_MORE maps degree onto the signing space: a set of ordered points in space (the starting and end point of the sign) corresponds to a set of ordered degrees. The more distant the points, the more distant the degrees. To illustrate, we show below how the articulation of TALL.ICONIC_MORE iconically changes on the basis of the difference compared: supposing that a man is 1 metre 80, the woman in (a) is 1 metre 82 and the woman in (b) is 1 metre 99.

a. A_BIT.TALL.ICONIC_MORE
'A bit taller than'



b. A_LOT.TALL.ICONIC_MORE
'A lot taller than'

Because of their nature, gradable adjectives without iconic mapping (like INTELLIGENT) cannot resort to the synthetic form to express degree comparatives. The only possibility is to combine the adjective with the lexical marker MORE.

5.1.5 Superlatives

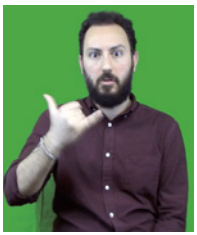
Gradable adjectives can also be modified to encode superlatives. These express the highest degree on the semantic scale associated with the adjective.

Two strategies that can be used to convey superlatives in LIS consist in the addition of the sign FIRST (a) or MOST (b) after the adjective. Both signs are articulated with upward path movement.

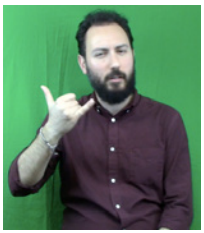
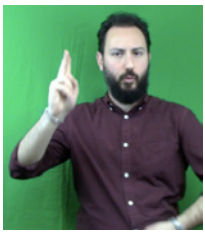
a. FIRST

b. MOST

Superlatives are often used to compare one entity to a group of other entities. For example, if one kid is the smartest in his class, the following two superlative constructions can be used.



a. INTELLIGENT FIRST
'The smartest'

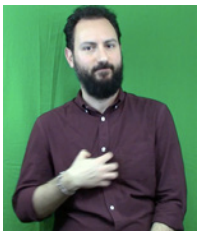
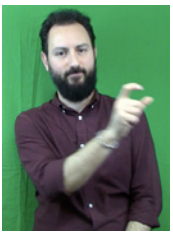
b. INTELLIGENT MOST
'The smartest'

In these cases, the signs FIRST and MOST do not provide different semantic contributions.

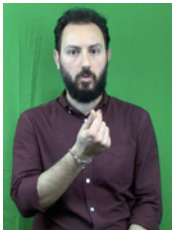
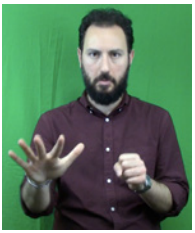
5.2 Arguments

Some adjectives can have arguments, i.e. constituents they select. Both the adjectival head and its argument are included in the adjectival phrase.

In LIS, the argument taken by the adjective can be of different types [SYNTAX 2.1.2]. The adjectives in the examples below take a noun phrase as argument: ENVIOUS selects a pronoun (a), while FULL selects a noun (b).

a. ENVIOUS IX_3_PERSON
'Envious of her/him'

b. MONEY FULL
'Full of money'

If the argument is a pronoun, as in (a) above, signers allow both orders (i.e. adjective + argument and argument + adjective). If the argument is a full noun, as in (b) above, the preferred order is argument + adjective.

Below, we present examples containing the adjectives PROUD (a) and CURIOUS (b). Both of them take clausal arguments.

a. KID_a IX_a HIGH_SCHOOL_DIPLOMA PROMOTE FATHER PROUD
'The father is proud that his son has obtained the high school diploma.'

b. POLITICIAN EARN HOW_MANY PERSON_a IX_a CURIOUS
'That person is curious how much politicians earn.'

Although other orderings are possible, LIS signers tend to produce clausal arguments before the related adjective, as shown above.

5.3 Adjuncts

Some adjectives can be modified by adjuncts, i.e. constituents they do not select. The relation between adjective and adjunct typically involves causality or comparison.

In a causal relation, the adjunct provides a justification or a reason. In the example below, the clausal adjunct explains why the subject of the sentence is happy.

$_1\text{MEET}_2$ HAPPY
'I am happy to see you.'

Note that the preferred order is clausal adjunct + adjective, as shown in the example above.

In comparisons, the adjunct usually follows the adjective and presents a similarity or dissimilarity between two or more entities. In the two examples below, the adjuncts IDENTICAL TOMATO (a) and AS_IF CARROT (b) modify colour adjectives.

a. FACE RED IDENTICAL TOMATO
'(His) face is as red as tomato.'

b. HAIR COLOUR ORANGE AS_IF CARROT
'(His) hair is as orange as carrot.'

Information on Data and Consultants

The descriptions in this chapter are based partially on the references below and on the elicitation of new data. The linguistic data illustrated as images and video clips have been checked through acceptability judgments and have been reproduced by Deaf native-signing consultants involved in the SIGN-HUB project.

Authorship Information

Lara Mantovan

References

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Bertone, C. (2007). *La Struttura del Sintagma Determinante nella LIS* [PhD dissertation]. Venezia: Università Ca' Foscari Venezia.

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Part VI
Pragmatics

Pragmatics is generally conceived as a theory of language use. Pragmatic studies do not address phonological, morphological, or syntactic features of language, rather they focus on the meaning of signs in their context of use. Pragmatics represents a core part of the grammar which strictly interacts with meaning in discourse and it also plays an important role in the interface between linguistic aspects and socio-cultural and cognitive phenomena.

This part is meant to present and discuss several pragmatic phenomena in LIS: both the more strictly linguistic phenomena such as deictic pronouns or referential tracking strategies and the phenomena which are related to a broader definition of pragmatics and that interact with cultural and social aspects such as register, politeness, and communicative interaction.

Reference, which is intended as the relationship between a linguistic expression and the denoted entity, is addressed in [PRAGMATICS 1]. This chapter also considers related phenomena, such as deixis, defi-

niteness, indefiniteness, specificity, and impersonal reference. How reference is tracked back in discourse by means of pronouns or other strategies is discussed in [PRAGMATICS 2]. Language can be used to act. Signers may perform different speech acts, such as assertions, questions, commands and requests [PRAGMATICS 3]. Research in pragmatics also considers the way in which new and old information (i.e. focus and topics), are organised in discourse and how non-manual markers can bear morphological and prosodic functions and help the addressee in recognizing such elements [PRAGMATICS 4]. Communicative exchanges among participants are structured and organised through coherence and cohesion. Foregrounding and backgrounding phenomena also play a role in information management [PRAGMATICS 5]. Indirect speech and reported action are discussed here from a pragmatic point of view [PRAGMATICS 6]: particular attention is devoted to role shift, a specific device used to report the utterances, thoughts, or actions of another person. In [PRAGMATICS 7], expressive meanings are briefly reported, by considering presuppositions, conversational and conventional implicatures. As other sign languages, LIS makes use of signing space to fulfil several linguistic functions, to convey temporal information, spatial relationships, and perspectives [PRAGMATICS 8]. Figurative meanings play a prominent role in LIS, not only in poetic field, but also in everyday language. In particular, in [PRAGMATICS 9,] metaphor and metonymy are discussed.

Finally, as stated before, a broader approach to pragmatics is also considered. In line with this approach, several cultural and socio-linguistic phenomena are presented: communicative interaction (with a particular focus on discourse markers, turn taking strategies, back channelling and repairs) [PRAGMATICS 10], register and politeness [PRAGMATICS 11].

The presentation of all these pragmatic phenomena is aimed at providing a comprehensive account of how LIS signs are used in context. Indeed, this Part will allow readers to expand their knowledge of LIS not only in the mere grammatical field, but also in discourse and contextual use.

1 Reference

Summary 1.1 Deixis. – 1.2 Definiteness. – 1.3 Indefiniteness. – 1.4 Specificity. – 1.5 Impersonal reference.

The term *reference* refers to the symbolic relationship between a linguistic expression and a concrete or abstract entity which is represented by the linguistic expression. We call *referring expression* the linguistic expression which denotes the abstract or concrete entity and *discourse referent* the entity referred to. For example, a cat called 'Fufy' represents the discourse referent. We can refer to this cat using several referring expressions, like the noun phrase 'the cat', the proper name 'Fufy', or both of them 'Fufy the cat'. We can also refer to the cat using a pronoun which is contextually related to the cat, as shown in the example below, where the pronoun is highlighted in bold.

CAT IX(dem) BEAUTIFUL-INT **IX$_3$** SLEEP ALL_DAY
'That cat is very beautiful, but s/he sleeps all day.'

All these referring expressions relate to the same entity: the cat 'Fufy'.

By focusing on noun phrases and pronouns, we can classify them with respect to their deictic or anaphoric uses. An expression is called deictic if it receives its reference from an extra-linguistic context. This is displayed in the sentence below.

DOI 10.30687/978-88-6969-474-5/029

Context: At the post office, someone asks for information indicating a letter.

wh
IX$_3$ MAIL WHERE
'Where can I mail it (indicating the letter)?'

On the contrary, anaphoric expressions pick up a discourse referent from the preceding test or discourse. The example below shows a type of anaphoric expression in LIS, that in this case is a pronoun.

WOMAN CL(G): 'woman_move' $_3$CL(V): 'look_at'$_1$. IX$_3$ BEAUTIFUL-INT
'A woman is walking, and then she suddenly turns to me, she is very beautiful.'

However, the distinction between deictic and anaphoric expressions is not always clear-cut, as shown by the sentence below uttered in the given context.

Context: After a teacher left the classroom, a student signs the following sentence.

IX$_3$ HOMEWORK $_3$CL(5): 'give_a_lot'$_1$ TOO_MANY
'She gave us too much homework.'

No previous mention to the teacher was explicitly done before the use of the pronoun as a referring expression. Moreover, the pronoun is not properly deictic since the teacher was no longer present in the classroom at the time of the utterance.

1.1 Deixis

Deictic elements are expressions that directly refer to entities present in the context of conversation. Deictic elements can also be temporal (TOMORROW) or locative (HERE), in which case they refer to the time and place of utterance. Consider as an example the sentence below.

IX$_{1+2}$ MEET TOMORROW
'See you tomorrow.'

The correct interpretation of this sentence is not possible because we lack the contextual information about where and when it was signed and about who was present. Therefore, we are not able to interpret who

corresponds to the indication $\text{IX}_{1+2,}$ and we are not able to understand if the sign TOMORROW refers to our future, or to a future in the past.

Leaving beside the spatio-temporal information, deictic expressions which refer to physical entities generally consist of an index handshape directed toward these entities. Such a pointing is realised in a specific signing space location previously established and associated to the discourse referent, as shown in the repeated example below.

Context: At the post office, someone asks for information indicating a letter.

wh
IX_3 MAIL WHERE
'Where can I mail it (indicating the letter)?'

The pointing sign may show some variation due to phonological processes, like assimilation [PHONOLOGY 3.1.1]. In this case, the pointing sign may assimilate a parameter of neighbouring signs. This is exemplified in the example below, where the deictic pointing sign referring to a contextual object and the sign pointing to the interlocutor are realised with the same orientation (palm up) displayed by the nearby verb WANT. Indeed, such a position is more comfortable for the wrist, which does not need to turn twice to produce the pronominal signs.

IX_3 WANT IX_2
'Do you want it?'

1.1.1 Pointing

In LIS, pointing is expressed with a manual sign directed toward an area in the signing space. A pointing sign may occur alone or together with another sign. In the former case, it fulfils a pronominal function [LEXICON 3.7], as shown in the example below, repeated for reason of clarity.

WOMAN CL(G): 'woman_move' $_3$CL(V): 'look_at'$_1$. IX_3 BEAUTIFUL-INT
'A woman is walking, and then she suddenly turns to me, she is very beautiful.'

In the second case, the pointing accompanies another sign, possibly functioning as a determiner [LEXICON 3.6]; [SYNTAX 4.1], as shown in the example below.

POPE$_a$ IX$_a$ AMERICA SOUTH$_b$ $_a$FLY$_b$
'The Pope flew to South America.'

It has been observed that the direction of eye gaze correlates with the demonstrative function. In particular, if the eye gaze is directed towards a referent, the signer indicates that the referent is physically present in the extra-linguistic context. However, the use of this marker is optional, as displayed in the example below, where no eye gaze occurs.

wh
A: IX$_2$ CLOTHES BUY WHAT
B: IX$_1$ BUY PE$_a$ SHIRT IX$_a$
'What type of dress did you buy?' 'I bought this very shirt.'

1.1.2 Social deixis

In a discourse the social characteristics of the participants can be referred to by specific uses of deixis, which are called *social deixis*.

The possibility to encode social distinctions in LIS seems to be subject to some variation. According to some LIS signers, nothing changes in the signing production if a participant has a high social status. Other signers report that social distinctions can be conveyed by handshape change. In particular, honorific pronouns [LEXICON 3.7.2.6] can be marked by using the unspread 5 handshape rather than the G handshape, as displayed in the picture below.

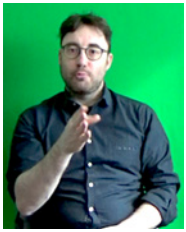


Figure 1 Unspread 5 handshape used as honorific form

Below, we provide an example containing the honorific form IX(unspread 5)$_2$.

Context: In a business company, the boss of the company enters the room where an employee is sitting. The employee stands up and signs the following sentence.

WELCOME SIT IX(loc)$_a$ BE_ABLE IX**(unspread 5)**$_2$
'Please, come, you can have a seat there.'

Another type of strategy which may signal social distinctions is represented by specific uses of the signing space. Contrast between the upper and lower part of the frontal plane may be used to convey asymmetrical relationships, as for parent-child or boss-workers relationships [PRAGMATICS 8.1.2]. To illustrate, we show in the video below the relation between a grandfather (localised higher in space) and his grandson (localised lower in space).

PIETRO IX$_a$ GRANDFATHER IX$_{[up]}$ IX$_{[down]}$ GRANDSON IX$_{3a}$
'Pietro is the grandfather's grandson.'

1.1.3 Lack of deixis

Lack of deictic expressions might convey generic reference or reference to a class of entities; indeed, a bare noun in LIS may express genericity, as exemplified by the sign FISH and EGG in the sentence below.

FISH EGG GIVE_BIRTH++$_{distr}$ TAKE_CARE++$_{distr}$
'Fishes make eggs and take care of them.'

1.2 Definiteness

Definite noun phrases are nominal arguments that denote discourse referents with the property of being univocally identifiable, as shown in (a) or the property of being familiar to both the signer and the interlocutor. Entities are familiar when: i) they are co-present in the context where the utterance is pronounced, as shown in (b), ii) are culturally shared in the common ground of the signer and the addressee, as shown in (c), or iii) had been previously mentioned in the discourse, as shown in (d).

a. MOON $\overline{\text{SASS(L): 'round\_big'}}^{\text{tl}}$
'The moon is completely full.'

rel
b. KEY$_a$ IX$_a$ TABLECL(closed G): 'put_on_a' IX$_a$ $_a$TAKE$_1$
'Take the key that is on the table.'

top
c. PRESIDENT IX$_a$ PERSON++$_b$ CL(5): 'all'$_b$ $_b$HATE$_a$
'As for the President, the people hate him.'

d. STREET MAN PERSON$_a$ IX$_a$ STROLL CL(V): 'WALK'. SUDDENLY CL(5): 'cloud_over' RAIN. MAN IX$_a$ TAKE UMBRELLA
'A man was walking on the street, when suddenly it clouded over and began to rain a lot. The man took an umbrella.'

1.2.1 Manual marking

Definiteness can be indicated by pointing signs. In LIS, pointing signs with the function of articles or demonstratives generally occur in post nominal position, giving the definite reference to the nouns [SYNTAX 4.1].

An example of pointing sign with the function of a definite article is displayed below.

DOG IX PLAY CONTINUE_VA_VA
'The dog kept on playing.'

An example of pointing sign with the function of a demonstrative is shown in the discourse stretch below.

top
CARD IX(dem) IX$_1$ NEED IX$_1$
'This card, I need it.'

1.2.2 Non-manual marking

In LIS, definite determiners, like articles and demonstratives, are both marked by means of non-manuals. The more common are raised eyebrows, chin up, contracted cheeks, and mouth slightly open [SYNTAX 4.1.1.3]; [SYNTAX 4.1.2.3].

Moreover, the co-articulation of a sign marked with squint eyes might denote a referent that is known and familiar to both the signer and the addressee, although not necessarily salient for the addressee. In this case, squint eyes may function as a cue in order to stimulate the addressee to retrieve an entity already present in his/her mental storage, but less salient. An example of a previously mentioned

topic reintroduced in the discourse and marked by squint eyes (sq) is presented below.

sq
HOUSE$_a$ IX(dem)$_a$ GIANNI AGENCY BUY DONE
'As for that house, Gianni bought it at the estate agency.'

Another common non-manual marker which accompanies referents that are shared between the signer and the interlocutor is raised eyebrows (re), generally marking presupposed information. This is shown in the example below.

re
TEST$_a$ LIS$_a$ IX$_a$ GIANNI$_b$ $_b$ARRIVE$_a$ LATE. TEST$_a$ NEG_O
'As for the LIS test, Gianni arrived late and did not take the test.'
(recreated from Brunelli 2011, 216)

1.3 Indefiniteness

Indefinite noun phrases are nominal arguments which refer to those discourse referents that are unknown to the interlocutor. They fulfil the function of introducing new entities in the conversation. This is exemplified below.

TODAY MORNING OFFICE$_a$ POSS$_1$ MAN ONE(indef)$_b$ $_b$COME$_a$
'This morning a man came to my office.'

Indefinite noun phrases can refer to non-unique discourse referents, for example to elements which display their properties with a class of other elements. For this reason, these elements are not uniquely identifiable, as displayed in the example below.

NIGHT STAR CL(5): 'shine'. BEAUTIFUL-INT
'Tonight, the stars are shining and it's very beautiful.'

1.3.1 Manual marking

In LIS, indefiniteness can be manually conveyed by the indefinite article ONE realised with the G handshape or with the S handshape. These elements generally occur in prenominal position, giving an indefinite value to the noun, but their realisation is not mandatory [LEXICON 3.6.2]; [SYNTAX 4.1]. The articulation of the indefinite article is realised in a steady position in an unmarked signed space or, alter-

natively, it may be accompanied by a tremoring motion. Such articulation relates to the degree of identifiability of the introduced constituent: the more unidentifiable it is, the broader the tremoring motion displayed. An example of indefinite article is presented below.

TODAY ONE(indef)$_a$ SKIER$_a$ IX$_1$ SEE$_a$ CL(curved open V): 'zig_zag_ski'$_a$

'Today, I saw a skier skiing with a zig-zag pattern.'

Indefiniteness may also be conveyed by the sign SOMEONE, as shown below.

IX$_1$ SOMEONE MEET
'I met someone.'

1.3.2 Non-manual marking

In LIS, a preference for the omission of the indefinite article has been detected in younger signers. Instead of the manual sign ONE, young signers are used to indicate the indefiniteness of a noun phrase by means of non-manual markings. The most common non-manuals are backward tilted head and mouth corners down, as shown in the example repeated below.

indef
TODAY SKIER IX$_1$ SEE CL(curved open V): 'zig_zag_ski'
'Today, I saw a skier skiing with a zig-zag pattern.'

1.4 Specificity

Specificity refers to a sub-classification of indefinite noun phrases. Specific indefinite noun phrases indicate discourse referents that the signer knows but the addressee does not, as shown in (a). On the contrary, non-specific indefinites are used when neither the signer nor the addressee knows the discourse referent, as shown in (b).

a. BOOK$_a$ IX$_1$ READ$_a$ WANT IX$_1$. LIBRARY$_b$ IX$_1$ $_1$GO$_b$ FIND$_a$ DONE $_a$TAKE$_1$
'I wanted to read a book. I went to the library, I found it, and I took it.'

b. TODAY BOOK$_a$ IX$_1$ READ$_a$ FEEL_LIKE IX$_1$. IX$_a$ BOOK$_a$ IX(dem)$_a$ INTEREST ING MUST
'Today I want to read a book. It must be an interesting one.'

In a nutshell, specificity correlates to the accessibility of the referent from the point of view of the signer.

1.4.1 Manual marking

In LIS, the lexical sign HEARING is also used in context where the identity of the discourse referent is neither known nor close to the signer, as shown in the example below.

MUSEUM ENTER FREE_OF_CHARGE BE_ABLE HEARING $_3$REPORT$_1$
'Someone told me that you can get into the museum for free.'

In LIS, some manual signs seem to accompany and mark specificity by using different spatial locations. A specific interpretation arises, for example, when signs are realised in the lower frontal plane of the signing space.

FRIEND$_a$ SOME$_{[down]a}$ HIDE
'Some friends were hiding.'

On the contrary, when non-anchored common nouns or plain verbs refer to non-specific discourse referents, they may be realised in the upper frontal plane. The example below shows a non-specific reading: neither the signer nor the addressee know the identity of the liars.

PALM_UP IX$_{[up]a}$ LIE SOMEONE$_{[up]a}$ PERSON++$_{[up]a}$ FRIEND$_b$ POSS$_{1a}$
DENOUNCE$_b$
'Some liars have denounced a friend of mine.'

1.4.2 Non-manual marking

In LIS, some non-manuals can also contribute in distinguishing specificity from non-specificity. In particular, raised eyebrows (re), wide-open eyes (we), and relaxed mouth-corners together with a backward head tilt (ht-b) may trigger a specific interpretation, namely the signer is talking about a discourse referent that she bears in mind.

ht-b
we
re
PERSON$_a$ IX$_a$ FRIEND$_b$ $_b$SEIZE$_a$
'A person (I know who) kidnapped a friend of mine.'

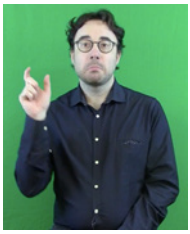
As for non-specificity, the facial expressions accompanying non-specific reading corresponds to those used for indicating indefiniteness, basically they are a backward tilted head (ht-b) and mouth-corners down (md).

md
ht-b
SOMEONE$_a$ IX$_b$ FRIEND$_b$ IX$_b$ CAR$_b$ POSS$_b$ $_b$SEIZE$_a$
‘Someone (I don’t know who) stole the car of a friend of mine.’

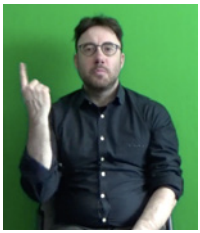
1.5 Impersonal reference

By impersonal reference, we intend the reference to individuals whose identity is not clear. When impersonal constructions are used, the degree of reference in the discourse is very low.

In LIS, impersonal reference can be marked by several strategies, both manual and non-manual. The manual signs triggering a low referential interpretation are the signs SOMEONE and PERSON, both functioning as indefinite pronouns. These signs are found with special non-manuals highlighting that the signer does not know the identity of the referent: they combine raised eyebrows (re), chin slightly raised (cu), and mouth-corners pulled downward (md). To convey an agent-backgrounding reading, these non-manuals are obligatory with the sign PERSON (a) and optional with the sign SOMEONE (b).



re
md
cu
a. PERSON
‘Someone’



md
cu
b. SOMEONE
'Someone'

The examples below show how the signs PERSON (a) and SOMEONE (b) convey an impersonal reading.

re
md
cu
a. PERSON HOUSE ENTER
'Someone entered my house.'
(recreated from Mantovan, Geraci 2018, 233)

re
md
cu
b. SOMEONE HOUSE ENTER
'Someone entered my house.'
(recreated from Mantovan, Geraci 2018, 233)

Another strategy that can be used to convey impersonality is null subject. In the example below, subject omission is compatible with a singular or plural referent. If no particular facial expressions are produced, the null subject is ambiguous between the referential and the impersonal reading. However, if the impersonal non-manuals described above spread over the verb or the entire clause, the impersonal reading becomes more prominent.

HOUSE ENTER
'Someone entered my house.'
(recreated from Mantovan, Geraci 2018, 233)

The null subject is the preferred impersonal strategy when generalising or corporate readings are involved. The example below is characterised by a generalised interpretation because the subject of the sentence does not refer to some particular Spanish individual, rather to a collectivity (i.e. Spanish people).

BE_COMMON IX(loc) SPAIN EAT LATE
'In Spain, people are used to eat late.'

The corporate reading emerges when a designated group of people is selected. In the example below, the subject does not refer to some particular individual, rather to the government or another institutional group.

TAX RAISE
'The government/they raised the taxes.'
(recreated from Mantovan, Geraci 2018, 251)

The difference between referential and impersonal readings can be marked by the use of space. Referential readings emerge through the selection of specific points of the neutral space, whereas impersonality usually involves undefined and unmarked locations. In the case of plain verbs [LEXICON 3.2.1], impersonality does not affect the form of the verbal sign. In the example below, the verb SMOKE is produced in its citation form and the subject is omitted.

HOUSE INSIDE SMOKE FORBIDDEN
'It is not allowed to smoke in the house.'
(recreated from Bertone 2011, 186)

In the case of agreeing verbs [LEXICON 3.2.2], impersonality is conveyed through the multiple repetitions of the verb in different locations of an undefined central area of the signing space. In the example below, the agreeing verb REPORT is repeated with both hands in different unmarked locations suggesting that there are several different agents and patients whose identity is not clear.

REPORT++ IX WOMAN IX PREGNANT
'It's rumoured that the woman is pregnant.'

With backward agreeing verbs, impersonality is also conveyed through reduplication in different unmarked location. In the example below, the backward agreeing verb COPY is repeated by alternating the two hands.

re
TEST PASS PALM_UP OBLIGATION COPY++
'To pass the test, you have to copy.'

Finally, note that regular personal pronouns [LEXICON 3.7] cannot be used to convey an impersonal interpretation. Pointing pronouns, directed toward specific locations in space, refer to some contextually salient individual. However, an exception can be found in conditional clauses. Under a conditional-context, both the first- and second-person pronouns can receive an impersonal interpretation. This special behaviour of pointing pronouns can be observed in the two examples below: both IX_1 (a) and IX_2 (b) are associated with an impersonal value.

cond
a. IX_1 CAR_a SEIZE_a AUTOMATIC IX_1 JAIL INSIDE
'If somebody steals a car, then he goes to jail.'

cond
b. IX_2 PERSON++$_a$ OFFEND_a EXCLUDE_2 SECOND
'If somebody is offensive, s/he is immediately excluded.'

Information on Data and Consultants

The descriptions in these sections are based partially on the references below and on the elicitation of new data. The linguistic data illustrated as images and video clips have been checked through acceptability judgments and have been reproduced by Deaf native-signing consultants.

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2 Reference tracking

Summary 2.1 Pronouns. – 2.2 Other means.

In the following sections, anaphoric pronouns will be described in relation to their properties [PRAGMATICS 2.1]. Anaphoric pronouns are linguistic elements which express co-reference with a previously mentioned item. However, co-referentiality can also be expressed by means of verbal agreement [PRAGMATICS 2.2.1], classifiers handshapes [PRAGMATICS 2.2.2], and buoys [PRAGMATICS 2.2.3].

2.1 Pronouns

Pronouns are linguistic elements which can express co-reference [LEXICON 3.7]. Co-reference occurs when two or more expressions refer to the same entity. Co-referential elements are usually composed of a full form, namely the antecedent, such as a noun, and an abbreviated form, which is the anaphoric element, for example a pronoun. Indeed, pronominal expressions are the main means of expressing co-reference in LIS. Referents are associated with certain areas in signing space, called referential loci. Pointing to a specific area in space activates the referents associated with this area. For instance, in the sentence below the referent BEAR is associated with locus *a*. Several sentences later, the signer can use the same locus *a* in order to refer back to the bear.

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BEAR IX_a FEAR […] IX_{3a} RUN AWAY
'The bear was scared […] He ran away.'

LIS seems to distinguish between different types of pronouns: reflexive pronouns, personal pronouns, possessive pronoun, the anaphoric pronoun PE and logophoric pronouns [LEXICON 3.7]. In LIS, the differences between the types of pronouns can decide which kind of co-referentiality they bear. Specifically, reflexive pronouns appear to express co-reference between discourse referents within one clause. Other types of pronouns, like personal pronouns and possessive pronouns, behave differently and can express co-reference with discourse referents also outside the boundaries of the clause where they are placed, or in a non-local domain.

As for reflexive pronouns, in the example below the two co-referential elements are the noun phrase MARIA and the reflexive pronoun SELF. Since the meaning of SELF depends on the meaning of MARIA, we will say that SELF is bound by MARIA.

MARIA LOVE SELF
'Maria loves himself.'

The sign SELF can also be used in other contexts as an emphatic form of intensification, as shown in the example below. In cases like this, SELF is not really used to refer back to the personal pronoun 'I' (IX_1), but to communicate the idea of performing the action in an independent way.

IX_1 PAY SELF
'I have paid by myself.'

As said before, reflexive pronouns must take their antecedent in their clause, a local context. Another example of a reflexive pronoun locally bound by its antecedent is presented below, where the reflexive pronoun SELF can only refer to the proper name MARIA.

GIANNI REPORT $MARIA_a$ IX_a LOVE ONLY SELF
'Gianni said that Maria loves only herself.'

There are situations when co-reference can also occur between a quantifier [LEXICON 3.10.2] and an anaphoric pronoun, such as in the examples below. In this case, since the reflexive pronoun SELF refers to the quantifier expression YOUNG EACH, the reflexive pronoun is semantically bound by the quantifier, and not simply co-referential with it. This special relation is defined 'semantically bound'. Indeed, since the expression YOUNG EACH is a quantifier, it is not possible to say that YOUNG EACH has a specific referential pronoun.

YOUNG EACH PAINT ONLY SELF
'Every young boy paints himself only.'

As anticipated before, other types of pronouns are personal pronouns and possessive pronouns. Unlike reflexive pronouns, personal and possessive pronouns behave differently. They seem to express co-reference with discourse referents which are not contained into the boundaries of the clause or into their local domain. As for personal pronouns [LEXICON 3.7.2], they are usually expressed by pointing signs, or by other means which will be discussed in the following paragraphs. An example of personal pronoun is shown below, where the third person pronoun IX_{3b} refers to an entity which is not locally expressed. This is the reason why MARCO and IX_{3b} are not co-indexed. Different entities which are not co-referential are indicated in the glosses with different indices, in this case with *a* and *b* respectively. In LIS, non-coreferential items are realised in different loci of the signing space.

MARCO_a IX_{3b} $_{3a}\text{HELP}_{3b}$
'Marco helps her.'

As shown above, in LIS co-referentiality is spatially expressed [PRAGMATICS 8]. Co-referential elements are localised in the same area (as GIANNI and the personal pronoun IX_3 in the example below). Furthermore, the anaphoric element (which in the example below is the pronouns IX_3) can be expressed through pointing in the same area of the antecedent (in this case GIANNI), as in the example below. Unlike spoken languages, sign languages can resort to this spatial strategy of co-referentiality to avoid any ambiguous interpretation.

GIANNI_a PIERO_b $_a\text{SEE}_b$. IX_{3a} HOUSE GO_AWAY
'Gianni saw Piero. Then he went home.'

The personal pronoun IX_3 clearly refers back to Gianni and not to Piero, because it is realised in the same locus of the signing space of Gianni, indicated with *a* in the example above.

However, this explicit co-reference can be avoided, if there is overt verbal agreement [MORPHOLOGY 3.1], as in the example below. Here, the co-reference with LUCIA is yielded by the agreement of the verb HATE, which is a directional verb. These cases will be further discussed in the next section.

LUCIA_a MARCO_b IX_b IX_{3a} LOVE_b. IX_{3b} $_b\text{HATE}_a$
'Lucia loves Marco. He hates her.'

Possessive pronouns, like personal pronouns, in LIS also refer to entities which are not expressed in their local domain or within the boundaries of the clause. This case is shown in the example below, where the possessive pronoun POSS$_3$ (realised with the handshape unspread 5) refers to the proper noun GIANNI, because both (the antecedent GIANNI and the possessive pronoun POSS$_3$) are articulated in the same referential locus, namely the signing space *a*.

GIANNI$_a$ KNOW MARIO$_b$ IX$_b$ LIKE LOVE CAT POSS(5)$_{3a}$
'Gianni knows that Mario loves his (Gianni's) cat.'

Variant forms of the possessive pronoun above are the forms realised with handshape G and wrist pivoting from radial to ulnar, as in (a), or without wrist rotation, as in (b).

a. GIANNI$_a$ KNOW IX$_b$ MARIO$_b$ LOVE LIKE CAT POSS(G)$_{[pivoting]3a}$
'Gianni knows that Mario loves his (Gianni's) cat.'

b. GIANNI$_a$ KNOW IX$_b$ MARIO$_b$ LOVE LIKE CAT POSS(G)$_{[non\text{-}pivoting]3a}$
'Gianni knows that Mario loves his (Gianni's) cat.'

Other tests exist to illustrate the difference between possessive and reflexive pronouns, one of these tests is the ellipsis of the verbal phrase [SYNTAX 2.5], as shown in the sentences below. In the example below, the unpronounced reflexive pronoun in the clause with ellipsis (SELF) can only refer to the nearest antecedent (GIANNI). The sentence means: 'Maria loves herself and Gianni loves himself'.

MARIA$_a$ LOVE SELF. GIANNI$_b$ IDENTICAL
'Maria loves herself, Gianni does so too.'

By contrast, the possessive pronoun, shown below, is more flexible in its interpretation since the unpronounced possessive pronoun (POSS$_3$) in the clause with ellipsis (IDENTICAL) can refer either to MARIA, or to GIANNI, even if GIANNI is the closest antecedent. Thus, the sentence can have two meanings reported below.

MARIA$_a$ CAT POSS$_{3a}$ LOVE$_a$. IX$_b$ GIANNI$_b$ IDENTICAL
'Maria loves her cat, Gianni does too (love her cat).'
'Maria loves her cat, Gianni does too (love his cat).'

A specific case of anaphoric pronoun in LIS is represented by PE [LEXICON 3.7] and [SYNTAX 3.4.2.1]. PE is a pointer to the noun which is modified by a relative clause, as in the example below.

rel
BOOK$_a$ IX(dem)$_a$ MARIA LOAN CL(flat open 5): 'give_book' PE$_a$ DISAP PEAR

'The book that Maria lent has disappeared.'

Finally, an interesting case of co-referentiality in LIS concerns the logophoricity of first personal and possessive pronouns under role shift [LEXICON 3.7.2.7]; [PRAGMATICS 6]. In LIS, after a character has been introduced, the signer can assume the point of view of this character, for example by moving his/her body towards the position in space associated to that character. In these cases, even though the signer points to himself, curiously, the pronoun co-refers with the previously introduced character, and it does not refer to the real signer anymore. The use of first personal pronoun IX$_1$ which is signed in combination with the use of role shift is shown in the example below.

rs
MARIA KNOW IX$_1$ INTELLIGENT

'Maria knows that she is smart.'

In the example above, the point of view of the referent MARIA is assumed by the signer, through role shift. Therefore, the first personal pronoun IX$_1$ does not refer to the signer anymore, but it refers to MARIA. The crucial element in the case of role shift is that the signer loses eye contact with the addressee.

2.2 Other means

Although pronouns are the most frequent co-referential element in LIS, they are not the only ones. In fact, other morphosyntactic strategies exist in order to track back referents, such as spatial agreement, classifier handshapes and buoys.

2.2.1 Agreement

The signing space can be used arbitrarily in order to place referents within the discourse. Some verbs, changing direction or movement, agree with the loci associated with their arguments. Indeed, spatial verbal agreement [MORPHOLOGY 3.1] is used as a co-referential mean. Often, the antecedent is previously realised in a specific point of the signing space, therefore overt co-referential elements can be omitted in the following sentences without giving rise to ambiguity. The

example below shows a case of spatial verbal agreement used without explicit anaphoric forms.

LUCA$_a$ CL(flat closed 5): 'be_at_a' GIOVANNI$_b$ CL(flat closed 5): 'be_at_b'.
BOOK RED $_b$CL(flat open 5): 'give_book'$_a$
'He (Giovanni) gives him (Luca) a red book.'

Sometimes, spatial verbs [LEXICON 3.2.3] agree with topographic locations instead of arguments. The topographic use of space iconically expresses the spatial relation among referents like in the example below, where the classifier predicate CL(closed 5): 'open _door' is directed towards the door.

CL(closed 5): 'open_door' PALM_UP
'Open it (the door)!'

In the sentence above, the verb is signed in the direction of the door, but neither the linguistic expression DOOR, nor an overt linguistic realisation of the referent has ever been mentioned by the signer. As in verbal agreement, spatial verbs are still cases of reference tracking where the co-reference of topographic locations is realised through spatial agreement.

2.2.2 Classifier handshapes

In classifier predicates [MORPHOLOGY 5.1] the handshape classifier can help in retrieving the antecedent. In fact, these classifiers can identify a class of objects by representing iconically the properties of the entity they describe, such as shape, size or the way in which they are handled. Frequently, the use of classifiers is enough and no other referential means, such as pronouns, are needed in order to disambiguate their referents.

The sentence below shows an example of these specific uses of classifiers. First, the sign CAT and PERSON++ are introduced. Then, the cat walks around, but the repetition of the sign CAT is not necessary anymore. Indeed, the classifier CL(flat closed 5): 'cat_walk' is enough to track back the reference of the cat.

CAT IX$_a$ HUNGER STRONG PERSON++ BARE. CL(flat closed 5): 'cat_walk'
FOOD LOOK_FOR
'The cat is very hungry. There is nobody around. He walks around looking for some food.'

The most commonly used types of predicative classifiers are entity classifiers [MORPHOLOGY 5.1.1], body part classifiers [MORPHOLOGY 5.1.2] and handle classifiers [MORPHOLOGY 5.1.3]. On the other hand, Size and Shape Specifiers (SASS) [MORPHOLOGY 5.2] are not used for reference tracking.

2.2.3 Buoys

In a discourse, signers can hold the handshape of a sign with the non-dominant hand, while the dominant hand continues to sign independently. This phenomenon is called weak hand holds and it can have two different functions. One concerns the discourse level, where the non-dominant hand simply expresses discourse relations, while in other cases the information held with the non-dominant hand still represents a co-referential meaning: these latter cases are called buoys [LEXICON 1.2.3].

In LIS, several types of buoys can be identified: list buoys, pointer buoys, theme buoys and fragment buoys.

List buoys are the outstretched fingers which function to track a certain number of referents. Each finger ensures a co-referential link to the discourse referents, as in the example below, where the signer refers to his fingers to keep track of his brothers in the discourse.

dom: IX_1 BROTHER THREE EXIST $\text{IX}_{\text{[thumb]}}$ LAWYER $\text{IX}_{\text{[index]}}$ DOCTOR $\text{IX}_{\text{[middle]}}$ TEACHER
n-dom: BROTHER THREE ----------

'I have three brothers, the first is a doctor, the second a lawyer, and the third a teacher.'

The signer may also point to the fingers with the dominant hand in order to retrieve that specific co-referent.

Pointer buoys are pronominal elements realised by the non-dominant hand. These buoys are very similar to pointing pronouns, but they are articulated simultaneously to the other signs. The example below shows this phenomenon.

dom: BEAR IX_{3b} MEAN IX_{3b}
n-dom: SEE. IX_{3b}----------

'The bear sees it and considers it mean.'

Theme buoys are holding signs which represent prominent information at the discourse sentence. They are realised through pointing and their function is to preserve the saliency of these referents along

the signed discourse, unlike the pointer buoys which are just arguments of a single sentence. In the example below, the theme buoy refers to some bad situation happened to the signer.

dom SAD IX_{3a} BE_OBSESSED $Q_{artichoke}$ IX_1 UNDERSTAND NOT
n-dom: IX_{3a} ----------
'He is sad and he is obsessed with something I don't understand.'

Sometimes, these prominent referents can be realised through a full lexical sign, which has been held for the whole duration of the related discourse. In these cases, the referents are called fragment buoys.

dom: BOOK IX(dem) IX_1 READ IX_1 THINK INTERESTING
n-dom: BOOK----------
'I read this book and think it is interesting.'

Information on Data and Consultants

The descriptions in this chapter are based on the references below. Please see the data and consultant information in these references. The video clips exemplifying the linguistic data have been produced by a fluent native signer who was born and grown in the northern part of Italy.

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3 Speech acts

Summary 3.1 Assertions. – 3.2 Questions. – 3.3 Commands and requests.

People use language to do many different things. For example, language is used to claim something, to insult someone, to promise something to someone, to ask something, to give a command, to express surprise or to do very specific actions, like when a judge declares someone guilty or when a civil servant declares two people married. Acts that are performed linguistically are called *speech acts*.

LIS has developed specific grammatical constructions that are typically associated to certain speech acts: declaratives are typically used to make assertions, interrogatives are typically used to ask questions, imperatives are typically used to elicit a behaviour from the addressee and exclamatives typically convey the information that something is surprising or noteworthy. However, there is no one-to-one correspondence between sentence type and speech act, as shown below.

3.1 Assertions

Although declaratives [SYNTAX 1.1] are the canonical way to make assertions, interrogatives can also be used to make a statement, i.e. 'Who does not like chocolate?' can be used to mean that everyone likes chocolate.

3.2 Questions

Although interrogatives [SYNTAX 1.2] are the canonical way to ask questions, also declaratives can be used to this effect. For example, the speech act associated to the declarative sentence 'I would like to know your address' is the same as the one associated to the interrogative sentence 'What is your address?'.

3.3 Commands and requests

Although imperatives [SYNTAX 1.3] are the grammaticalised way to make a request or a command, declaratives ('I would like to have some water') and interrogatives ('Can you give me the pepper?') can be used to make a (polite) request.

3.4 Exclamatives

To be developed.

Authorship Information

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4 Information structure

Summary 4.1 Focus. – 4.2 Topic. – 4.3 Morphological and prosodic markers of topic and focus.

The expression *information structure* refers to the way in which information is packaged in relation to the context and the previous knowledge of the interlocutors. The status of the information is considered with respect to the addressee's knowledge and can be codified as new or old. Consider for example the discourse reported below.

wh
A: GIANNI BUY WHAT
B: GIANNI HOUSE BUY
'What did Gianni buy?' 'Gianni bought a house.'

The sign HOUSE indicates to the addressee that Gianni did not buy a car or a bike, but a house. In this case, HOUSE represents the new information which was implicitly selected among a set of other possible entities. These possible entities are called alternatives, and the new information item is considered a focus [PRAGMATICS 4.1].

On the other hand, in the same sentence, the proper name GIANNI is known both by the speaker and the interlocutor. Since both of them understand which specific individual this name refers to, it is considered a topic [PRAGMATICS 4.2]. Topics are generally identified as old or given information since they are shared between the speaker and the addressee.

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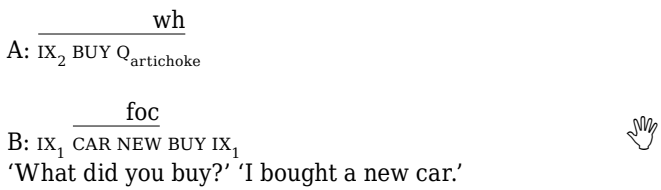
Another relevant notion related to information structure is contrast. Contrast is a more general notion and it can apply to both the focus and the topic. Contrastive focus [PRAGMATICS 4.1.3] is used to introduce a new piece of information in substitution of a previously given piece of information. Contrast can also apply to two or more topics [PRAGMATICS 4.2], when previously mentioned entities are contrastingly compared.

Information structure concerns the organisation of sentences and the sentence internal organisation of units of information linked to larger pieces of text. This differs from the discourse structure, which concerns the way in which sentences are related in a broader context. These two levels can overlap.

Information structure in LIS can be identified by means of syntactic, morphological, or prosodic cues. The present section provides a description of focus, topic and the non-manual markers involved in their realisation.

4.1 Focus

Focus is used to convey new information. It is also defined as a linguistic expression identifying a set of alternatives which are relevant for its interpretation. This is demonstrated in the discourse reported below.



'What did you buy?' 'I bought a new car.'

The focus item CAR automatically creates in the mind of the addressee a set of other alternatives (house, bike, pullover…), and among these unpronounced alternatives the focus is the one chosen. Depending on its scope, focus can be broad or narrow. Broad focus [PRAGMATICS 4.1.1] carries new information within the whole sentence, and it generally occurs as the answer to a general question like 'What happened?'. Narrow focus [PRAGMATICS 4.1.2] concerns a single phrase (or sign). It can only introduce a piece of new information denoting a particular concept or entity, or it can have a contrastive or corrective meaning. If focus is corrective, it denies a previously mentioned item, substituting it with the correct one [PRAGMATICS 4.1.3]. Another type of focus is emphasis. It highlights an item by repeating it at the end of the sentence, or by reinforcing it with a particular prosodic contour [PRAG-

MATICS 4.1.4]. Finally, focus can also be doubled in order to place stress into a specific expression [PRAGMATICS 4.1.5].

4.1.1 All-new focus

All-new focus refers to those sentences which lack background information. These sentences are also considered instances of broad focus, because they are completely composed of new information. In LIS, these sentences can be marked by head nod and eye blink at the end, or the lengthening of the last sign.

wh
A: HAPPEN $Q_{artichoke}$

foc
B: GIANNI ACCIDENT DONE
'What happened?' 'Gianni had an accident.'

4.1.2 New information focus

In new information focus, only a part of the sentence conveys new information. Generally, it can be used as an answer to a specific question, as in the discourse stretch below.

wh
A: IX_2 BUY $Q_{artichoke}$

foc
B: IX_1 CAR NEW BUY IX_1
'What did you buy?' 'I bought a new car.'

In the example above, NEW CAR is the part of the sentence conveying new information. On the other hand, the subject (IX_1) and the verb (BUY) represent the background, which conveys old information. Generally, new information focus follows the background. Another similar example is presented below.

wh
A: FOOD VARIOUS IX_2 IMPOSSIBLE_NO_WAY WHICH

foc
B: IX_1 C-A-P-P-E-R-I PE IX_1 IMPOSSIBLE_NO_WAY
'What kind of food do you hate most?' 'I hate cappers.'

However, in LIS it is also possible to find ellipsis in place of the part of the sentence conveying background information. Indeed, for signers this is the most natural strategy to answer a specific question. The example below reports a case in which new information (PIZZA) is conveyed by focus and background information is elided as a result of ellipsis.

wh
A: FOOD VARIOUS LIKE MOST WHICH

foc
B: PIZZA
'What kind of food do you like most?' 'Pizza.'

New information focus can also be expressed by question-answer pairs, specifically by the answer of the construction. This is a strategy often used by signers to give prominence to the item contained in the answer. Note that the question part of this construction and typical content interrogatives [SYNTAX 1.2.3] have different non-manual markers.

wh foc
IX_1 FOOD LIKE WHICH PIZZA
'The kind of food I like is pizza.'

4.1.3 Contrastive focus

Contrastive focus conveys a new piece of information that contrasts with a previously mentioned item. Contrast is a broad notion that can also appear out of the blue, referring to a larger part of the sentence. However, contrastive focus are pieces of information which deny or correct previous statements. In the example below, SUSHI represents the contrastive focus and appears before the personal pronoun (IX_1) and the verb (ADORE), which convey background information.

Context: Someone says that the signer likes pizza.

foc
NOT. IX_1 $PIZZA_a$ IX_a IX_1 $IMPOSSIBLE\_NO\_WAY_a$. IX_b $SUSHI_b$ IX_1 $ADORE_b$
'No! I hate pizza, I love sushi!'

Contrastive focus in LIS may also be in sentence-initial position, as shown in the example below.

y/n
A: PIZZA LIKE IX$_2$

foc
B: IX$_1$ IMPOSSIBLE_NO_WAY. SUSHI PREFER
'You do like pizza.' 'No! I prefer pizza!'

Differently from new information focus, which is not frequently accompanied by non-manual markers, corrective focus may be marked by non-manual and manual markers [PRAGMATICS 4.3.1].

It is important to note that corrective focus also allows ellipsis of the background information containing the wrong item. In fact, this is considered a redundant repetition of the previous question or statement and it can be avoided, as in the example below.

A: CAKE LIKE IX$_2$

foc
B: IX$_1$ NOT CHESTNUT PREFER
'You do like cakes.' 'No! I prefer chestnuts.'

4.1.4 Emphatic focus

Emphatic focus is used for highlighting a particular item or drawing attention to it. Emphasis may be conveyed by repeating the focused item. The repeated items are usually morphologically simple elements or syntactic heads, for example modals, verbs, tense signs, negative signs, quantifiers, nouns, and *wh-* elements. The example below shows a repeated modal verb (BE_ABLE).

Context: Someone asks if the signer runs.

foc
YES IX$_1$ BE_ABLE IX$_1$ RUN BE_ABLE IX$_1$
'Yes, I can, I can run.'

Emphasis can also be conveyed through the repetition of the emphatic lexical item SELF or IX_PERSON [LEXICON 3.7.4].

foc
IX$_1$ SELF PAY SELF
'I have paid for myself!'

In LIS, emphasis can be conveyed by other strategies as well, such as particular intonation contours, generally based on specific non-manual markers, especially wide eye and raised eyebrows.

4.1.5 Focus doubling

Doubling is another common way to mark focus and place emphasis on an expression. Similarly to emphatic focus [PRAGMATICS 4.1.4], focus doubling generally concerns morphologically simple elements or syntactic heads (modals, verbs, tense signs, negative signs, quantifiers, nouns, *wh*- elements).

foc
IX$_1$ PASTA ALL EAT DONE IX$_1$ ALL
'I have eaten all the pasta, all of it!'

4.2 Topic

In spoken and sign languages, a sentence is generally subdivided in topic and comment. Topics are defined as old or given linguistic expressions which are considered familiar or uniquely identifiable between the speaker and the addressee. Generally, the topic item is defined as old or given because it is an entity previously mentioned or previously introduced in the communicative context. The comment, on the contrary, is that part of the sentence which introduces new information [PRAGMATICS 4.1].

Topic items are commonly supposed to be identifiable in the mind of the interlocutor. In LIS, topics are distinguishable from a prosodic, syntactic and pragmatic point of view. These elements might present specific features. Prosodically, topic items can be accompanied by a specific intonation contour [PRAGMATICS 4.3.2], or can be separated from the comment by specific intonational cues, such as head nod and eye blink. Non-manual markers which are involved in topic items are further specified in [PRAGMATICS 4.3.2]. Syntactically, topics can be found in the initial part of the sentence.

In LIS, topic elements are not always marked by specific intonational cues and they are not necessarily placed in the very initial part of the sentence. Topics are recognizable through pragmatic criteria which allow a further differentiation in three distinct categories: aboutness topics, scene-setting topics and contrastive topics.

Aboutness topics establish what the sentence is about. They convey the information about which the comment predicates something new. A single sentence may host only one aboutness topic in LIS. An example of aboutness topics is reported in the sentence below.

AbT
MAN IX_a $IX_{1\ 3a}TELL_1$ EVERYTHING
'The man has told me everything.'

Aboutness topics (AbT) are argument of the predicate and they can also be realised as pronominal forms, particularly when the communicative context allows such simplification. In particular, this happens when a previously introduced topic in a discourse is considered by the signer accessible or easily retrievable in the mind of the interlocutor.

Moreover, in the case of very prominent information (namely when an entity is kept consistent across several sentences and it is completely accessible in the mind of the interlocutor) the signer can decide to omit the topic referent. An example of these two possibilities is reported below. In the second clause, the pronominal form (IX_3) refers to a previously introduced character (DOG), appearing in the first clause. Within the second clause, the verb GO_AWAY allows the omission of the subject (MAN). Indeed, the repetition of MAN would be useless, since the referent is supposed to be prominent and easily accessible in the mind of the addressee.

DOG $IX(dem)_a$ HUNGER STRONG. MAN CL(G): 'walk'. IX_{3a} CL(F): 'eyes_move' GO_AWAY SAD
'The dog is starving. A man walks by. He (the dog) follows him with his eyes, but the man goes away, and the dog is sad.'

As opposed to aboutness topics, scene-setting topics are not arguments of the verb in LIS, rather they are adjuncts with the function of establishing the frame setting of a sentence. In other words, these types of topics provide spatial and temporal information which set the scene of the sentence. For this reason, scene setting topics very commonly occur in the very initial part of the sentence, also preceding the aboutness topic item.

An example of a scene setting topic of time, here indicated as Sst_T, is presented in bold below.

Sst_T
TOMORROW RAIN MAYBE BE_POSSIBLE
'Tomorrow, it will probably rain.'

An example of a scene setting topic of location, here indicated as Sst_L, is reported below.

Sst_L
TABLE KEY CL(G): 'be_at_a' IX_{3a} $POSS_1$ $TOUCH_a$ FORBIDDEN
'On the table, there is a key, it is mine. Do not touch it.'

More than one scene-setting topic expressions may be produced in the same sentence providing spatio-temporal information. An example of this case is reported below. It includes: i) a scene-setting topic of time (YESTERDAY), ii) a scene-setting topic of location (CINEMA IX(loc)), and iii) an aboutness topic (M-A-R-I-A). Aboutness and scene setting topics are very likely to co-exist in the same sentence. In most of these cases, the scene setting topic of time precedes the scene-setting topic of location and only after them the aboutness topic is realised.

Sst-T Sst-L Abt
YESTERDAY CINEMA IX(loc) M-A-R-I-A FILM WHITE BLACK VARIOUS SEE
'Yesterday, at the cinema, Maria saw various white and black movies.'

Topics can also have a contrastive function, namely, they can express an opposition between two previously mentioned referents. An example is the case below where the two referents GIANNI and MARIA are contrasted and defined as Contr_top. In the same example, DOG IX_3 is likely to be interpreted as the aboutness topic of the sentence. The contrastive topics in the example below are produced after the aboutness topic.

Abt Contr_top1 Contr_top2
DOG_a IX_a $GIANNI_b$ $LOVE_a$ $MARIA_c$ $HATE_a$
'As for the dog, Gianni loves him while Maria hates him.'

It is important to distinguish between contrastive topic and contrastive focus [PRAGMATICS 4.1]. While topics can only convey contrast in the case of parallel opposed items, focus items also have a corrective function, namely they can correct a statement previously expressed. An example of contrastive focus is reported below.

Context: Someone says that you like pizza.
foc
NOT IX_1 $PIZZA_a$ IX_a IX_1 IMPOSSIBLE_NO_WAY. IX_b $SUSHI_b$ IX_1 $ADORE_b$
'No! I hate pizza, I love sushi!'

In the case of contrastive topic, items are also present in the sentence, they generally tend to follow the aboutness topic item, no matter if they are subjects or objects. The example below shows contrastive topic subjects.

Context: What do Maria and Gianni think about the cauliflower?
Abt Contr-top1 Contr-top2
CAULIFLOWER GIANNI IMPOSSIBLE_NO_WAY MARIA ADORE
'As for the cauliflower, Gianni hates it while Maria loves it.'

The example below shows contrastive topic objects.

Context: What does Maria think about the pizza and the fish?
Abt Contr-top1 Contr-top2
MARIA FISH$_a$ IX$_a$ IMPOSSIBLE_NO_WAY PIZZA$_b$ IX$_b$ ADORE
'As for Maria, she hates fish, while she adores pizza.'

By considering these examples in LIS, it is possible to establish a potential order which holds true among the three types of topics appearing in a sentence: Scene-setting Topics of Time > Scene-setting Topics of Location > Aboutness Topics > Contrastive (parallel) topics.

4.3 Morphological and prosodic markers of topic and focus

The following section provides a description of the manual and non-manual markers involved in the production of topic and focus in LIS.

4.3.1 Focus

Focus in LIS can be marked by several strategies: syntactical, morphological, lexical, and prosodic. As for syntax, focality in LIS may affect word order in both contrastive and new informational focus [PRAGMATICS 4.1]. As for the lexical strategies, focused items may be accompanied by focus particles, such as ONLY, ALSO and EVEN (more details are provided below). As for the morphological and prosodic cues which accompany focus elements, these markers can be manual or non-manual. Manually, focus items can be affected by a lengthening of the sign, a larger amplitude, and a higher speed in signing. Non-manually, some types of focus can be accompanied by raised eyebrows, wide eyes, head forward, and leftward or rightward head tilt and/or body lean. Furthermore, some non-manuals fulfil the function of marking prosodic boundaries among constituents: in LIS, these markers are head nod and eye blink. The use of these markers does not seem to be mandatory: their use might depend on the type of focus or on the pragmatic context. In the remainder of the section, for each type of focus, we provide a description of the manual and non-manual markers used by LIS signers.

New information focus [PRAGMATICS 4.1.2] in LIS is not obligatorily marked by manual and non-manual features. It is very often accompanied by mouthing or mouth gestures, but it does not seem to be marked by other non-manual cues. As for the manual features, signs conveying new information focus are lengthened and can be realised with a wider amplitude than non-focus signs.

wh
A: IX$_2$ BUY Q$_{artichoke}$

foc
B: IX$_1$ CAR NEW BUY IX$_1$
'What did you buy?' 'I bought a new car.'

Similarly to new information focus, contrastive focus [PRAGMATICS 4.1.3] may be syntactically manipulated, by changing the word order position. However, differently from new information focus, contrastive focus is mostly marked by manual and non-manual features. The most frequent non-manual markers involved in the realisation of contrastive focus items are mouthing, raised eyebrows (re), and wide eyes (we). They generally spread over the item or over the whole clause, as in the example below. Multiple head nods (hn++) can also accompany the production of the focused part of the clause. Sometimes the contrastive focus item is also marked by forward body lean (bl-f), which signals prominence.

Context: Someone says that the signer likes pizza.

hn++
we
re
NOT IX$_1$ CHESTNUT IX$_1$ LIKE IX$_1$
'No, I do love chestnuts!'

Contrastive meaning can also be conveyed through leftward (bl-left) and rightward (bl-right) body lean, so that the negated item and the corrected focus item are located in two different positions in space.

Context: Someone says that the signer likes pizza.

bl-left bl-right
IX$_1$ PIZZA$_a$ IX$_a$ IX$_1$ IMPOSSIBLE_NO_WAY IX$_1$ ADORE$_b$ SUSHI$_b$
'No, I do not like pizza, I adore sushi!'

Emphasis [PRAGMATICS 4.1.4] can be conveyed both through the use of the lexical items PERSON (a) or SELF (b) and through non-manual markers, such as wide eye (we) and forward body lean (bl-f).

we
bl-f
a. IX$_1$ SEE$_a$ PRESIDENT$_a$ PE$_a$ PERSON$_a$
'I saw the President in person!'

b. IX$_1$ SELF PAY SELF
'I pay for myself!'

In LIS, there are lexical particles which attribute focus to a specific item, thus modifying its meaning. The most frequent particles in LIS are ONLY, ALSO and EVEN, shown in the examples below. They commonly follow the focus item, but they may also precede it. ONLY is a restrictive focus particle which excludes the alternatives from a given set. The particle ONLY is marked by raised eyebrows (re) and wide eyes (we).

we
re
IX_1 $PASTA_a$ $ONLY_a$ $SAUCE_b$ ADD NEG_S_b BETTER
'I (want) pasta only, it is better not to add any sauce.'

By contrast, ALSO conveys an additive meaning, establishing that at least one more element is added to the focus set. The focus particle ALSO is generally accompanied by multiple head nods (hn++), as shown below.

Context: Someone says that s/he knows Anna.
hn++
ALSO IX_1
'Me too.'

The focus particle ALSO is also shown in the discourse stretch below.

A: IX_1 SUSHI IX_1 ADORE
hn++
B: ALSO IX_1
'I love sushi.' 'Me too.'

A second use of ALSO exists and it not only expands the focus set including an additional constituent from an alternative set, but it also conveys an additional scalar interpretation to the focus item, implicating that the inclusion of the associated item is unlikely. This particle has the meaning of 'even' and it is mostly marked by furrowed eyebrows (fe) and single (hn) or multiple head nods (hn++). We provide an illustrative example below.

hn++
top we
$POPE_a$ IX_a $GROUP_b$ GOD BELIEVE NOT ALSO LIKE IX_b IX_a
'Even atheist people like the Pope!'

Sometimes, when the focus items are more than one, specific non-manual markers spread over the various items. In the example below, the contrastive focus involves two items: the first one (CHOCOLATE) is

marked by a leftward body lean, while the second one (STRAWBERRY) is accompanied by a rightward body lean in order to underline the existence of two distinct entities. It is interesting to note that, in such case, raised eyebrows spread only over the first item.

re
wh bl-left bl-right
IX$_2$ WANT PREFER WHICH CHOCOLATE STRAWBERRY
'Which one do you prefer? Chocolate or strawberry?'

4.3.2 Topic

As in other sign languages, topics in LIS might be non-manually marked. Although the presence of prosodic markers is not mandatory, it is possible to identify some recurrent tendencies among topic types. In this section, a description of these uses is provided.

Aboutness topics in LIS are mostly marked by raised eyebrows and squint eyes. We usually find one of these two markers. Raised eyebrows (re) are shown below.

re
dom: BOSS IX$_a$ CL(V): 'walk_to_b' CL(V): 'fall_at_b'----------
n-dom: CL(V): 'fall_at_b' DOG COME

dom: CL(V): 'fall_at_b'----------
n-dom: CL(curved open V): 'jump_on_b'++
'The boss was walking when he fell on the ground, then the dog came and jumped on him several times.'

The example below shows the combination of aboutness topic and squint eyes (sq).

sq
MAN IX(dem) IX$_{1\ 3}$TELL$_1$ EVERYTHING
'That man has told me everything.'

However, in rarer cases, it is possible to find both of them accompanying the same topic expression, as in the example below.

re
sq wh
DOME MILAN CL(spread curved open 5):
'be_at' DIRECTION WHICH DIRECTION O-V-E-S-T
'The front of the dome of Milan is directed toward the West.'

In LIS, squint eyes seem to play a role in the retrievability of the information conveyed by the topic. It is possible to suppose that a signer uses this marker when the interlocutor is supposed to already know the topic entity. Moreover, in LIS, there is a statistically significant correlation between the marker squint eyes and aboutness topics [PRAGMATICS 4.2] which are realised as nominal expressions. Therefore, contrarily to pronouns which are easily retrievable topics, it is possible that the marker squint eyes accompanies topics which are not easily retrievable.

Conversely, aboutness topics [PRAGMATICS 4.2], which are realised as pronominal forms, are more likely to be marked by another specific non-manual marker: head tilt back. This is displayed in the example below.

Finally, aboutness topics which are realised as nominal expressions are also likely to be divided from the remaining part of the sentence by two non-manual markers: eye blink (eb) and head nod (hn). These markers can occur after the realisation of the aboutness topic item separately or together, the latter case is displayed below.

hn
sq eb
DOG IX$_{3a}$ CHILD++ SEVEN SASS(flat open 4): 'little'++ BEAUTIFUL
'The dog had seven cute little cubs.'

Similarly to aboutness topics, scene-setting topics [PRAGMATICS 4.2], of both time and location, might be accompanied by raised eyebrows and squint eyes. We can find one of these markers over the topic expression or they can be both present in a layering fashion, as in the example below, where these two non-manual markers accompany the scene setting topic of location (TREE).

re
sq
TREE$_a$ SASS(5): 'shape_round'$_a$ BIRD FLY CL(curved open v): 'fly_on_top_of_a'
'A bird flew to the top of a tree.'

Sometimes, when scene setting topics of time and scene-setting topics of location occur together in the same sentence, the non-manual markers might have scope over the entire topic expressions. An example of this is displayed below, where the raised eyebrow spread over both the scene-setting topic of time (YESTERDAY) and location (RESTAURANT INSIDE).

hn
re eb re
YESTERDAY RESTAURANT INSIDE FISH$_a$ GIANNI EAT DONE PIZZA$_b$
NOT_YET

'Yesterday, at the restaurant, as for the fish, Gianni ate it, while pizza he didn't.'

Moreover, similarly to aboutness topics, also scene-setting topics can be divided by a prosodic pause which is signalled by an eye blink and a head nod, as illustrated in the example above.

With regards to the realisation of contrastive topics [PRAGMATICS 4.2], they also show the presence of raised eyebrows and squinted eyes. Body leans to the left and to the right are mainly used as a specific signal of contrast, as displayed in the example below.

Context: What do Gianni and Maria think about the cat?

hn hn
eb eb eb
re bl-right bl-left
CAT IX$_a$ GIANNI$_b$ HATE$_a$ IX$_c$ MARIA$_c$ LOVE$_a$

'As for the cat, Gianni hates him, while Maria loves him.'

Information on Data and Consultants

The descriptions in this section are partially based on the references below and partially on the elicitation of new data. The linguistic data illustrated as images and video clips have been checked and collected through spontaneous discourse, elicited sentences and grammatical judgments. The data above have been produced by a LIS native signing consultant involved in the SIGN-HUB Project.

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5 Discourse structure

Summary 5.1 Coherence and discourse markers. – 5.2 Cohesion. – 5.3 Foregrounding and backgrounding.

The discourse level goes beyond the sentence level and it is formed by utterances linked to a specific pragmatic context.

Discourse structure requires coherence, which means that the different parts of the text have to be coherently connected with each other, keeping logic continuity within the discourse. An example of coherence is represented by the correct use of temporal and causal relationships between different sentences. Another textual property is represented by cohesion. Sentences are linked to each other through linguistic strategies that keep track of reference.

Both coherence and cohesion strategies may be overtly or covertly realised. In the first case, the discourse markers have a manual or non-manual realisation. In the second case, covert relationships are established between utterances, by taking advantage of the world knowledge and the implicatures [PRAGMATICS 7].

5.1 Coherence and discourse markers

Coherence is that property of a text through which it is possible to organise and guarantee a logic transmission of meanings. In order to assure coherence, it is necessary that the conceptual building blocks

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of discourse follow a certain order and are united through logical connections as well as discourse markers. Two or more utterances can be linked to each other by discourse markers which involve conjunctions [LEXICON 3.9], reformulations, argumentative markers, and discourse particles.

As stated before, discourse markers can be explicit, namely overtly expressed, or implicit, namely left unexpressed. As will be discussed in the following sections, overt particles in LIS can be realised throughout manual signs, non-manual markers, and spatial relationships.

5.1.1 Manual discourse markers

The manual markers used in coordination and subordination [SYNTAX 3] can also be considered as discourse connectors from a discourse point of view. The same markers also play a role in the dynamics of a signed conversation [PRAGMATICS 10].

The various discourse markers used in LIS can be classified into four categories according to their function: i) discourse structuring markers, ii) discourse connectors, iii) reformulation markers, and iv) argumentative markers.

Discourse structuring markers are used to link phrases or sentences binding together pieces of discourse. They enhance the logical structure of a text and express several different relationships, such as introducing, connecting or concluding a discourse. Some examples of discourse structuring markers in LIS are listed and shown below.

Table 1 Discourse structuring markers in LIS

Ordering markers: initial	
	now
	start
	know
	well
	unexpected

Ordering markers: continuity

after

plus

in_addiction

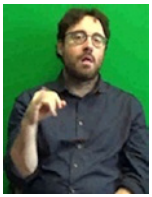
aside

Ordering markers: closure

finish

Ordering markers: closure

anymore



last

close

An example of the contextual use of an initial marker is reported below. The discourse particle is marked in bold.

WELL IX_2 HOPE IX_{2pl} UNDERSTAND IX_1 EXPLAIN
'Well, I hope you understood what I explained.'

The following sentence includes the sign PLUS, employed as continuative discourse marker. For the sake of clarity, it is highlighted in bold.

PLEASE HOUSE COME_BACK WINDOW CL(A): 'roll_up_the_blinds'
CL(4): 'rolled_up_blinds' PLUS CAT IX_a FOOD $GIVE_{3a}$
'Please, when you come back home, roll up the blinds and also feed the cat.'

The example below shows a case of final discourse marker in bold.

SIGN IX PARAMETER FOUR HANDSHAPE PALM_ORIENTATION,
MOVEMENT LOCATION FINISH

'The sign has four parameters: handshape, palm orientation, movement and location. Finish.'

Discourse connectors are those markers which link sentences and form more complex discursive structures. Some examples of discourse connectors are reported in the table below.

Table 2 Discourse connectors in LIS

BUT	CONTRARY	OR
PLUS	CONSEQUENCE	

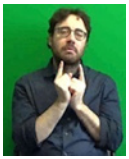
An example of discourse connectors in LIS is the sign consequence. Such discourse particle creates a consequential relationship among sentences, as displayed in the example below.

MUNICIPALITY PROJECT ELIMINATE CONSEQUENCE IX COMPANY CLOSE

'The municipality cancelled the project and as a result the company closed down.'

Reformulation markers are used to rephrase sentences or pieces of discourse, by adding information or by adding further explanation to a concept, as displayed below.

Table 3 Reformulation markers in LIS

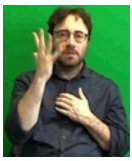
Explanatory:	 MEANING
Recapitulative:	 BRIEFLY

An example of a reformulation marker is shown below.

MUNICIPALITY IX MONEY INVEST NEG_O MEANING PROJECT
PE COLLAPSE
'The municipality does not have money, namely the project fell apart.'

Argumentative markers are supposed to reinforce or exemplify the discourse, examples of these two markers are reported in the table below.

Table 4 Argumentative markers in LIS

Reinforcement:	 EXACTLY	
Exemplifiers:	 EXAMPLE	 TYPE

In the examples below, we show how argumentative markers can be used in context. Respectively, example (a) displays a case of reinforcement marker and example (b) shows a case of exemplificative marker.

a. VENETO REGION EXACTLY IX(loc) PADUA IX(loc) DONE PROTEST
NUMBER MOST
'Most of the protests have taken place in Veneto, especially in Padua.'

b. IX_2 GLOVE++ TYPE POSS_3 CLEAN TAKE
'Take the gloves, those for cleaning.'

5.1.2 Non-manual discourse markers

In LIS, discourse particles may also be realised through non-manual markers, which can reinforce the meaning of the manual sign or bear independent meaning. The example below shows a case of adversative coordination [SYNTAX 3.1]. Note that the discourse particle BUT is omitted and substituted by a particular use of non-manuals which scope over the adversative clause, specifically, mouth corners down (md).

md
IX_1 DWELL ROME IX(loc) IMPOSSIBLE_NO_WAY IX(loc)
MILAN IX_1 ACCEPT
'I coudn't live in Rome, but I'd be willing to live in Milan.'

5.1.3 Strategies using signing space

The signing space may also be used to convey information at a discourse level. The signing space may cover several discourse functions: i) signalling a topic which is not at-issue and deviates from the main discourse, ii) marking contrast between two or more referents, or iii) realising temporal relationships.

In the example below, the signing space is used to establish a main topic (a play at the theatre) and a secondary topic (the information about the play's writer). Through lateral body leans, the signer associates the main topic with the contralateral area and the secondary topic with the ipsilateral area.

bl-left
YESTERDAY THEATRE IX_a TITLE WHICH D-O-N-G-I-O-V-A-N-N-I IX_a
bl-right
PE_b PAST WRITER WHO IX_b M-O-Z-A-R-T IX_b PERIOD DEAD BEFORE IX_{3b}
bl-left
THEATRE IX_a IX_1 SEE BEAUTIFUL-INT
'Yesterday, the theatre presented the play 'Don Giovanni', the play was written by Mozart before he died, I looked at the play, which was very beautiful.'

Alternatives can be encoded in the signing space as well. This may be done by placing two options in different locations of the horizontal plane, as displayed in the example below.

IX_2 BUY OR IX_a $APPLE_a$ OR $WINDOW_b$ CHOOSE IX_2
'You can choose to buy an Apple Mac or a Windows PC.'

The use of signing space may also convey temporal information [PRAGMATICS 8], such as the establishment of consequential events. The anaphoric time line, which is realised through space, follows an imaginary diagonal trajectory. Anaphoric temporal references are determined within the discourse and are expressed with respect to a point of reference marked along this line. In the sentence below, the point of reference is represented by the birth of the signer's nephew, which is signed close to the signer's body on the ipsilateral side. The move to Bologna realises a relation of posteriority and is expressed farther from the signer's body on the contralateral side.

NEPHEW BE_BORN IX_1 BOLOGNA MOVE
'After my nephew was born, I moved to Bologna.'

5.2 Cohesion

Cohesion is another property of discourse and it mostly concerns the use of grammatical and lexical forms to indicate semantic relations across sentences. Some of the linguistic devices which enhance textual cohesion are referring expressions, such as pronouns [LEXICON 3.7]; [PRAGMATIC 4.2] which refer to previously introduced elements. Such strategies make possible for the addressee to keep track of discourse referents. An example of this pronominal function is displayed below, where the pronouns IX_{3a} and IX_{3b} both refer to previously mentioned subjects, GIANNI and MARIA respectively.

GIANNI$_a$ MARIA$_b$ PAST SCHOOL TOGETHER GROW$_{a+b}$
NOW IX$_{3a}$ STOP WORK ALREADY CONTRARY IX$_{3b}$ CONTINUE UNIVERSITY
'Gianni and Maria went to school together and grew up together. Now he is already working after quitting school, while she is continuing her studies at the university.'

In the example above, the second utterance is clearly linked to the previous one and the pronominal expressions co-refer with the two antecedents.

As will be discussed in the following sections, several strategies can be used in LIS for referring back to already mentioned elements: manual strategies, non-manuals strategies, and the signing space.

5.2.1 Manual strategies

Pronouns and determiners in LIS are able to manually track back referents previously introduced in the discourse structure. Co-reference is realised by pointing toward those locations that were previously established and associated with the relevant referents. This cohesive device contributes to ensure reference tracking.

An example of pronominal expressions was presented above: references to GIANNI and MARIA was realised by directing pointing pronouns toward the locations in space previously associated with these two referents. In addition, an example of a demonstrative form is presented below.

BOOK IX(dem)$_{[proximal]}$ IX$_1$ READ DONE IX(dem)$_{[distal]}$ NOT_YET
'As for this book, I have read it, that one not yet.'

However, not only pronominal or demonstrative forms are used for reference tracking, also other linguistic strategies which are language specific. For example, LIS, as other sign languages, makes use of some linguistic devices typical of the visual-gestural channel.

One of these elements consists in handshapes classifiers [MORPHOLOGY 5] which denotes an entity and adds cohesion to the discourse. Three major classes of predicative classifiers, such as entity classifiers [MORPHOLOGY 5.1.1], bodypart classifiers [MORPHOLOGY 5.1.2] and handle classifiers [MORPHOLOGY 5.1.3] are used for representing referents which move, are being moved or can be located somewhere. In the case of predicative classifiers, the subject can be explicitly mentioned, but it can also be omitted. An example of predicative classifier which allows the omission of the object pronoun ('him') is reported below and highlighted in bold.

dom: DOG IX_a DOG **aCL(spread curved open 5): 'bite'b**
n-dom: PERSON CL(G): 'walk'$_b$

'There is a dog and a person who is walking by. The dog bites (him).'

In LIS, signers can also produce discourse markers with the non-dominant hand guiding the discourse and providing a conceptual landmark. These strategies are known as buoys [PRAGMATICS 2.2.3]. List buoys are employed to keep a visual track of both ordered and unordered entities which are introduced into the discourse.

Buoys differ from numerals in that they are mostly realised with the fingers oriented to the ipsilateral side rather than upward. Moreover, the association between the referent and the finger is generally enhanced by moving the dominant index toward the tip of the appropriate finger of the non-dominant hand. An example of buoy is presented below.

IX_1 CHILD FOUR HALF IX_a MALE IX_b FEMALE
dom:. FIRST $IX_{[index]}$ SPORT FOOTBALL $IX_{[middle]}$ VOLLEYBALL
n-dom: FOUR--------- SPORT FOOTBALL FOUR--- VOLLEYBALL

dom: $IX_{[ring]}$ SKATING ICE $IX_{[pinky]}$ UNEXPECTED CHESS
n-dom: FOUR SKATING ICE FOUR---------- CHESS

'I have four children, half are male and half female. The first plays football, the second plays volleyball, the third ice-skates, and the fourth, unexpectedly, plays chess.'

Finally, another strategy which enhances textual cohesion in LIS is a phenomenon called dominance reversal. Such linguistic strategy permits to shift the dominance of the hand for reasons of linguistic convenience. In the second part of the sentence displayed below, the signs are produced with the non-dominant hand. In this case, the classifier for HOUSE is placed on the ipsilateral side and is realised with the dominant hand. Therefore, the signer chooses to sign the remain part of the sentence with the non-dominant hand in order to facilitate the production of the rest of the sentence. Meanwhile he keeps track of the house through the dominant hand.

dom: HOUSE EXIST TWO CL(spread curved open 5): 'house is_at_a'
---------- ----------
n-dom: HOUSE CL(spread curved open 5): 'house is_at_b' IX$_b$ POSS$_1$ MAN GO$_b$
'There are two houses, one is mine. A man goes there.'

5.2.2 Non-manual strategies

Another important linguistic device for reference tracking is role shift. Role shift [PRAGMATICS 6] is used for referring to a particular participant and assuming his/her perspective. The participant referred to may be some other person or the signer himself/herself in a different time and place.

Some non-manual markers, such as the temporary interruption of eye contact between signer and interlocutor, indicates that the referential shift is taking place. In case of role shift, no other linguistic strategies are needed: for example, the repetition of the nominal expression denoting the referred entity is possible, but not necessary. An example of role shift is reported below and highlighted in bold.

rs: bear
BEAR CL(**closed 5**): **'bear_lumber'**
'The bear is lumbering.'

In LIS, the specific use of squint eyes accompanying topic expressions [PRAGMATICS 4.3.2] seems to highlight that the entity the signer is presenting has been previously introduced into the discourse. However, this marker also suggests that the referent is no longer easily accessible in the mind of the interlocutor. An example of this use is reported below.

sq
MAN IX(dem) IX$_1$ $_3$TELL$_1$ EVERYTHING
'The man (you know) has told me everything.'

5.2.3 Strategies using signing space

As already announced, the signing space also plays an important function in the retrieval of previously introduced elements. In particular, agreement predicates allow the omission of the argument [SYNTAX 2.4.2], but they still guarantee the possibility to track back the correct entity. In the example proposed below, the locations where the agreement verb is realised are spatially connected to the loca-

tions where the two subjects GIANNI and MARIA have been previously produced.

GIANNI$_a$ MARIA$_b$ BOOK $_{3a}$CL(flat open 5): 'give_ book'$_{3b}$
'As for Gianni and Maria, he gave the book to her.'

The agreement verb GIVE allows the omission of the subject and the object, since the referents were clearly established in the signing space. Another example displays a case of farther reference tracking.

ROOM KITCHEN$_a$ MOTHER CL(flat closed 5): 'be_at' EXIST, IX$_1$ BATHROOM$_b$
$_a$GO$_b$ $_b$GO$_a$ DISAPPEAR$_a$
'Mum was in the kitchen, I went to the bathroom and when I came back, she was gone.'

The referential entity MUM, introduced in the first sentence, is retrieved in the second sentence despite the shift of the subject. This is possible because the verb of the second sentence, DISAPPEAR, agrees with the location of the subject (MOTHER).

5.3 Foregrounding and backgrounding

As in other sign languages, also in LIS specific spatial means can identify foreground or background information. The first concerns the most highlighted part of the discourse, while the second refers to the less salient stretch of discourse.

Again, given the visual channel, a simultaneous strategy can be used: the non-dominant hand keeps track of background information, while the dominant hand provides the new and salient information.

In the following example, the signer keeps the sign for 'slice of bread' through the non-dominant hand adding information about the preparation of this bread through the dominant hand.

IX$_1$ BREAD IX$_1$ CL(unspread 5): 'cut_the bread'

dom: IX$_a$ IX$_1$ CHEESE CL(unspread V):
'spread_on_a'
n-dom: CL(unspread 5): 'slice_at_a'---- CHEESE CL(unspread 5):
'slice_at_a'----
dom: THEN TUNA IX$_1$ CL(flat closed 5): 'put_tuna_on_a'
n-dom: CL(unspread 5): 'slice_at_a'----------

dom: THEN TOMATO IX$_1$ PUT$_a$ CL(curved open L):
'put_tomato_on_a' IX$_1$

n-dom: CL(unspread 5): ‘slice_at_a’

---

dom: CL(unspread 5): ‘put_slice_on_a’ CL(flat open 5): ‘eat’ DELICIOUS NOT

n-dom: CL(unspread 5): ‘slice_at_a’------- CL(flat open 5): ‘eat’

‘I cut a loaf of bread in half, there I spread cheese, then I added tuna and some slices of tomato. I ate it, but it was not good!’

Information on Data and Consultants

The descriptions in these sections are based on the references below and on grammatical judgments. For information on data and consultants see the references. The video clips and images exemplifying the linguistic data have been produced by a LIS native signer coming from the northern part of Italy and involved in the SIGN-HUB Project.

Authorship Information

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6 Reporting and role shift

Summary 6.1 Attitude role shift and (in)direct speech. – 6.2 Action role shift.

In LIS, role shift [SYNTAX 3.3.3] is characterised by particular semantic and morphosyntactic properties.

Semantically, the expressions that are signed under role shift are somehow interpreted 'from another person's perspective' than the actual signer, or 'with respect to another context' than the context of the actual speech act.

Morpho-syntactically, role shift is typically marked overtly by some non-manual articulation, which may involve: i) body shift or change in body posture, ii) head movement, iii) change in the direction of eye gaze, and/or iv) altered facial expressions in order to mark that the signer is adopting somebody else's perspective.

Note that role shift in LIS can be used to report utterances or thoughts of another person (so called *attitude role shift*) [PRAGMATICS 6.1] or to report the actions another person performed (so called *action role shift*) [PRAGMATICS 6.2].

6.1 Attitude role shift and (in)direct speech

Attitude role shift is typically used to report utterances, thoughts, or attitudes of other persons. The following sentence illustrates the oc-

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currence of attitude role shift. Several features should be stressed. First, after the main verb the signer shifts his body towards the locus associated to the main subject (GIANNI) to indicate that the rest of the utterance should be interpreted from this person's perspective. Second, and related to this, the first person pronoun IX_1 in the embedded subject position does not refer to the actual speaker, as is normally the case with indexical pronouns, but, rather, to the person whose perspective is adopted (namely GIANNI). Finally, TOMORROW is evaluated with respect to the moment of Gianni's utterance, whence the translation.

rs: Gianni

YESTERDAY $GIANNI_a$ IX_a $_{3a}TELL_1$ IX_1 TOMORROW LEAVE

'Yesterday Gianni told me that he would leave today.'

Attitude role shift is functionally similar to direct speech in spoken languages. By using direct speech, one reports an utterance from the perspective of the person to whom that utterance is attributed. If yesterday Gianni said the sentence 'I'll leave tomorrow' and I want to report this to someone else by using direct speech, I can utter the sentence 'Gianni said: 'I'll leave tomorrow''.

6.2 Action role shift

In action role shift, the signer *enacts* or takes the role of another person. In the following sentence, the use of role shift allows the signer to show, instead of describing it, the gracious act of Gianni. Action role shift allows to express how the action is performed by including the body language of the protagonist of the action.

rs: Gianni

GIANNI HOUSE ARRIVE $MARIA_a$ IX_1 FLOWER $_1$CL(closed 5): 'give_flower'$_{3a}$

'Gianni arrived home. He donated flowers to Maria.'

Information on Data and Consultants

The video clips exemplifying the linguistic data have been produced by a LIS native signer coming from the northern part of Italy and involved in the SIGN-HUB Project.

Authorship Information

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7 Expressive meaning

Summary 7.1 Conversational implicature. – 7.2 Conventional implicature. – 7.3 Presupposition.

The reconstruction of meaning in a discourse often goes beyond the simple lexical interpretation of the words or signs which compose a sentence. Natural languages are highly dependent on the pragmatic context in which they are used. The meaning that is not actually expressed, but is understood from the context, is commonly known as *expressive meaning*.

7.1 Conversational implicature

When interpreting a discourse, the addressee typically expects that the signer communicates in a cooperative way. According to the cooperative principle, participants in a conversation cooperate to achieve mutual conversational goals. Under this line of research, the signer is expected to obey a set of rules, known as conversational maxims. There are four cooperative maxims: quantity, quality, relevance, and manner. The maxim of quantity states that the quantity of delivered information must be appropriate. According to the maxim of quality, the delivered information must be true and supported by adequate evidence. The maxim of relevance consists in making contributions that are relevant to what has been said before. The fourth

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maxim concerns manner: the delivered information must be brief, clear, and unambiguous.

In some cases, signers might decide to violate a maxim in a way that interlocutors clearly understand the violation. In such situations, a conversational implicature arises.

Importantly, implicatures are context-dependent: in the presence of different contexts, the same implicature might not arise.

Very common conversational implicatures are scalar implicatures, which are often related to a set of lexical expressions and are ordered by entailment, such as the quantifiers SOME, MOST and ALL [LEXICON 3.10.2]. The signer knows that, in the entailment scale, SOME is lower than MOST and lower than ALL. The choice to use a more specific item (e.g. MOST) suggests that the stronger characterisation (e.g. ALL) does not hold. An example of a sentence with the use of MOST is presented below.

STUDENT MAJORITY STUDY BE_ENGAGED
'Most of the students are engaged in studying.'

In the sentence above, the conversational implicature is that 'not all the students are engaged'. However, if the signer adds a second utterance, such as in the example below, the previously established conversational implicature is cancelled.

STUDENT MAJORITY BE_ENGAGED STUDY PALM_UP ALL BE_ENGAGED
'Most of the students are engaged in study, actually all the students are engaged.'

Unlike conversational implicatures, conventional implicatures [PRAGMATICS 7.2] and presuppositions [PRAGMATICS 7.3] cannot be cancelled.

Another property of conversational implicatures is that they can be reinforced, as in the example below. Here we can see that the expression MORE_THAN NOT fulfils the function of reinforcing the implicature ("no more than the established number").

GIANNI$_a$ IX$_a$ CAR TWO EXIST MORE_THAN NOT
'Gianni has two cars and no more than two.'

Conversational implicatures are also not detachable. Given a specific context and a specific proposition, the same implicatures will arise. As in the example below, where the conversational implicature enhances the possibility that tomorrow it will not rain.

TOMORROW RAIN MAYBE BE_POSSIBLE
'Maybe tomorrow it will rain.'

7.2 Conventional implicature

Differently from conversational implicatures, conventional implicatures are entailed by lexical and constructional meanings. Indeed, conventional implicatures are not context-dependent, namely their generation does not depend from the context. Conventional implicatures are closely related to the lexical meaning of the relevant linguistic expression. In the implicature exemplified below, the concept of being fat is felt in contrast with the concept of being agile and a skilled dancer.

tl
WOMAN IX$_a$ FAT BUT DANCE GOOD_AT
'The woman is very fat, but she is good at dancing.'

Regardless of the context, conventional implicatures are attached to a specific linguistic meaning and for this reason it is not possible to cancel them by adding further sentences, such as in the case of conversational implicatures [PRAGMATICS 7.1]. For instance, it is not possible to cancel the contrast between being fat and being agile by adding a sentence which specifies that this contrast does not hold (i.e. 'The woman is fat, but she dances well and no contrast exists between the fact that she is fat and that she dances well').

7.3 Presupposition

The presupposition of an utterance concerns the part of encyclopaedic knowledge or the piece of information that the signer assumes in order for the utterance to be meaningful within a specific context. In the example below, the utterance presupposes that Gianni used to smoke before but he stopped doing it.

GIANNI SMOKE STOP
'Gianni stopped smoking.'

Similarly to conventional implicatures, presuppositions are triggered by specific lexical meanings. The main distinction between these two pragmatic phenomena is the fact that in presuppositions the additional meaning is relevant for evaluating the truth conditions of the utterance. It means that, in order to consider the descriptive meaning true ('Gianni stopped smoking'), the interlocutor needs to assume that the presupposed meaning is true ('Gianni used to smoke').

Information on Data and Consultants

The descriptions in these sections are based on grammatical judgments. The video clips and images exemplifying the linguistic data have been produced by a LIS native signer coming from the northern part of Italy and involved in the SIGN-HUB Project.

Authorship Information

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8 Signing space

Summary 8.1 Uses of signing space. – 8.2 Temporal expressions. – 8.3 Perspective.

The signing space refers to the three-dimensional area where the signs are articulated. Generally, it is considered to be restricted to the area in front of the signer's torso. In the horizontal plane, this area usually extends from elbow to elbow.

The signing space has a crucial role in LIS, fulfilling several grammatical functions. The current chapter outlines the features and functions of the signing space in LIS. An important distinction relates to the use of the signing space, which can be abstract [PRAGMATICS 8.1.1] or topographic [PRAGMATICS 8.1.2]. Temporal information may also be conveyed through a metaphorical use of the signing space [PRAGMATICS 8.2]. Moreover, it is possible to associate the signing space with the signer's perspective in describing events and situations [PRAGMATICS 8.3].

8.1 Uses of signing space

The signing space is not only used for articulating signs, but it can also bear meaning itself. It is possible to distinguish two different uses of the signing space. The first one is the abstract use, which conveys syntactic information and abstract references [PRAGMATICS 8.1.1]. The

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second one is the topographic use of the signing space, which encodes the spatial distribution of the described referents [PRAGMATICS 8.1.2].

8.1.1 Abstract use

The picture below shows a commonly abstract use of the signing space area.

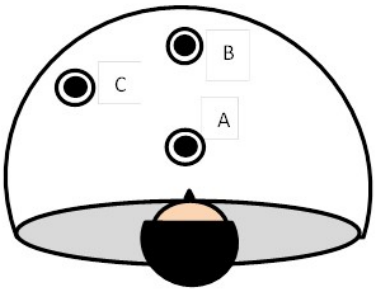

Figure 1 Abstract representation of the signing space (recreated from Bertone 2011, 120)

The black dots named A, B and C represent the articulation points in space. In particular, the location A is characterised by the [+ proximal] feature and indicates a position closer to the signer or the signer himself/herself (for this reason it also specifies the first person). The location B is characterised by the [- proximal] feature and refers to the interlocutor's position, identifying the second person. The location C is characterised by the [+ distal] feature and relates to a position far away both from the signer and the interlocutor, thus indicating the third person. The remaining locations of the signing space, which are not associated with any referent, represent neutral and undetermined points.

The abstract use of the signing space fulfils morphological and syntactic functions, realising referent-location associations and verb agreement. According to this type of use, locations in the signing space are arbitrarily chosen in order to set discourse referents and realise the arguments of the verbs [PRAGMATICS 1.1]. The establishment of a locus in space does not convey any specific semantic meaning, neither it affects the truth condition of the sentence. It means that the spatial loci can be moved in space, and these changes do not determine any consequence in the meaning of the sentence. This phenomenon is shown in the two sentences below.

a. MAN IX$_b$ WOMAN IX$_a$ BOOK $_{3b}$CL(flat open 5): 'give_book'$_{3a}$
'The man gives the book to the woman.'

b. MAN IX$_a$ WOMAN IX$_b$ BOOK $_{3a}$CL(flat open 5): 'give_book'$_{3b}$
'The man gives the book to the woman.

Crucially, the meaning of the two examples above is the same. The exact point in space in which the discourse referents ('man' and 'woman') are localised is not relevant, as long as the verb is directed from the location associated with the subject (MAN) to the location associated with the indirect object (WOMAN).

Although these locations are interchangeable, LIS seems to have a preference in setting the subject and the object position. The subject is generally localised on the ipsilateral side of the signer, while the object is localised on the contralateral side of the signer. Ipsilateral refers to the area closer to the side of the dominant hand, while contralateral corresponds to the area more distant from the side of the dominant hand, considering the horizontal axis, as shown in the picture below. If we consider a right-handed signer.

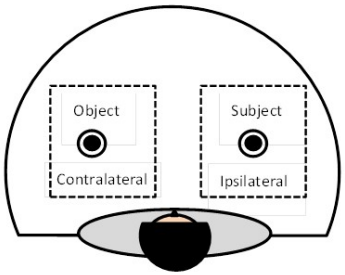

Figure 2 Mapping of syntactic structures onto spatial positions (recreated from Geraci 2014, 125)

Localising an entity in the signing space also allows to anaphorically refer back to the same entity within a discourse. In these cases, spatial location is called referential locus (or R-locus) and fulfils the anaphoric function of reference-tracking [PRAGMATICS 2]. The reference occurs via a first introduction of the entity in the discourse and its association with a referential locus in space. The chosen location may be used by the signer to mention that entity again in the discourse. This strategy allows the interlocutor to retrieve an entity which was previous located in the same point in space. The retrievability is fa-

voured by manual and non-manual cues pointing to the spatial location where the entity was located. The sentences below, (a) and (b), show how it is possible to refer back to a previously introduced referent. Specifically, in sentence (a) the strategy used to favour retrievability is manual, i.e. a pronoun realised by pointing the extended finger toward the relevant R-locus [LEXICON 3.7]. Sentence (b) shows an example of non-manual referring-back strategy, which occurs via eye gaze (eg) pointing toward the relevant R-locus.

a. DOG IX(dem)$_a$ HUNGER STRONG. MAN CL(G): 'walk'. IX**3a** CL(F): 'eyes_move' GO _ AWAY SAD
'The dog is starving. A man walks by. He (the dog) follows him with his eyes, but the man goes away, and the dog is sad.'

b. WOMAN BEAUTIFUL-INT CL(G): 'walk'$_a$ IX$_1$ LOOK _ AT LIKE IX$_1$ (eg: a) (eg: a)
'A very beautiful woman is walking by. I look at her, I like her!'

The same syntactic function of the signing space is conveyed through the use of possessive pronouns [LEXICON 3.7.3]. In such case, the use of the signing space results distinctive in unambiguously referring to a specific entity. In the example below, the possessive pronoun is directed to the R-locus where GIANNI was previously signed, and it unambiguously expresses co-reference. This sign indicates that the cat can belongs to Gianni (not to Mario) because of the specific use of the signing space.

GIANNI$_a$ KNOW IX$_b$ MARIO$_b$ IX$_b$ CAT POSS$_{3a}$ LIKE IX$_{3a}$
'Gianni knows that Mario loves his cat.'

LIS also seems to account for the increasingly larger amount of entities through the increasingly higher use of space. Therefore, a little amount of people indicated by the articulation of a predicative classifier 'all go' is generally located in the lower part of the frontal plane within the signing space. This is shown in the example below, where the predicate classifier 'all go' refers to the family.

PARK PE YESTERDAY IX$_1$ IX$_{1pl}$ FAMILY CL(spread curved open 5): 'group_move'
CL(5): 'all_go'
'Yesterday all my family went to the park.'

On the contrary, a big amount of people, like a crowd in a demonstration, is referred to through the articulation of the same predicative classifier 'all go', but this time realised in the upper part of the frontal plane of the signing space. This is shown in the example below.

ONE^YEAR^LAST PARK PERSON++ PROTEST CL(5): 'all_go'
'Last year, lots of people went to the park to protest.'

8.1.2 Topographic use

A different use of space is the topographic use which expresses spatial relations among entities and conveys specific meanings through the different locations of the signing space. Such meaningful descriptions expressed by loci are possible because of the iconic properties of the visual-spatial channel. Topographic use of space bears a semantic value because a modification in the locus corresponds to a different truth condition of the sentence. This can be seen in the two examples below in which two distinct locations provide different meanings.

a. TREE_a SASS(5): 'tall_round' BIRD FLY CL(curved open V): 'fly_on_top_of_a'
'A bird flew to the top of a tree.'

b. TREE_a SASS: 'tall_round' BIRD FLY CL(curved open V) 'fly_on_bottom_of_a'
'A bird flew to the bottom of a tree.'

Such spatial information is mostly conveyed through classifier constructions. As shown in the examples above, the predicative classifier referring to the bird is used to place the referent on the top or on the bottom of a tree.

If more than one referent is present in space, LIS signers usually introduce background entities first and then the entity which is under the focus of attention. The background elements are called *ground*, and the central element is called *figure*. The spatial relationship among these entities is expressed through the specific location of the classifiers in the space. The simultaneous description of several elements is licensed by the possibility for a signer to use both manual articulators. Such case is shown below.

dom: BOSS IX_a CL(V): 'walk_to_b' CL(V): 'fall_at_b'----------
n-dom: CL(V): 'fall_at_b' DOG COME

dom: CL(V): 'fall_at_b'----------
n-dom: CL(curved open V): 'jump_on_b'++
'The boss was walking when he fell on the ground, then the dog came and jumped on him several times.'

Topographic entities of the real world are mapped into the signing space in two main contexts. The first one concerns geographic information and the second one is related to the description of the physical environment.

As for geographic information, cities and countries are mapped into the frontal plane of the signing space, as representing an imaginary map in front of the signer. In such way, northern areas are realised in the upper part of the signing space, southern areas in the lower part, western areas on the left side of the signing space, and eastern areas on the right side.

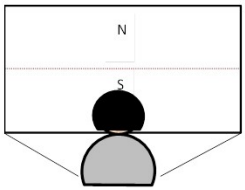

Figure 3 Topographic use of the frontal plane in LIS: north vs. south

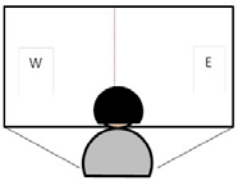

Figure 4 Topographic use of the frontal plane in LIS: west vs. east

As for the description of the physical environments, such as rooms, shops, or building interiors, the imaginary map is mapped into the horizontal plane of the signer, as shown in the picture below.

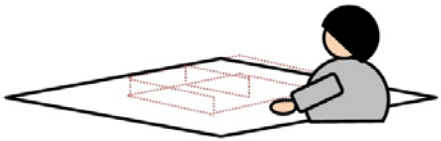

Figure 5 Topographic use of the horizontal plane in LIS

Another iconic use of the frontal plane involves social distinctions. In this regard, hierarchical relations are iconically represented in the signing space: higher social positions are generally mapped into the upper part of the frontal plane, while lower social positions are represented in the lower part of the frontal plane. In family relations, the upper part is usually associated with older family members, the lower part with younger ones. As a consequence, several asymmetrical relations can be mapped into the frontal plane, such as parent - child, boss - worker, and teacher - student [PRAGMATICS 9]. To illustrate, we show in the video below the relation between a grandfather (localised higher in space) and his grandson (localised lower in space).

PIETRO IX_a GRANDFATHER $IX_{[up]}$ $IX_{[down]}$ GRANDSON IX_{3a}
'Pietro is the grandfather's grandson.'

The main differences between the two types of spatial uses, abstract and topographic, concern the conceptualisation of the points in the signing space. The abstract use establishes a formal and arbitrary relationship between the referent and the corresponding location, on the contrary, the topographic use establishes an iconic or symbolic relationship between the referent and the corresponding location in the signing space. Furthermore, the abstract use of space is composed of fixed trajectories within each spatial plane, while the topographic use exploits a larger and freer range of spatial positions. Both these uses should not be conceived as mutually exclusive, but they may co-exist in the same signing production. For instance, consider a context in which a woman and a man are mentioned. They are produced in two different areas of the signing space: WOMAN on the right and MAN on the left.

WOMAN IX_a GO _ OUT STROLL CL(V): 'walk', IX_b MAN DRUNK CAR CL(curved open V): 'get_in_the_car'.
dom: CL(unspread 5): 'car_move'$_b$ CL(unspread 5): 'car_crash'$_b$
n-dom: CL(V): 'person_walk'$_a$ CL(V): 'person_crash'$_b$
'A woman went out for a stroll. A drunken man got in his car. The man was driving dangerously, the woman was walking, and then he hit the woman.'

The last classifier predicates in the example above [MORPHOLOGY 5] employ both the abstract and the topographic space.

The anaphoric use of the signing space can be observed in the classifier predicate CL(V): 'person_walk' which anaphorically refers back to an entity mentioned in the previous sentence, the walking woman.

The topographic use of the signing space is fulfilled by the iconic position of the woman represented with respect to the car's position.

8.2 Temporal expressions

The signing space is also used to convey temporal information at both lexical and discourse level. Such information is realised through an imaginary time line perpendicular to the signer's body. At the lexical level, temporal information is expressed by adverbials, such as YESTERDAY and THEN, and other signs referring to time, such as THREE^YEAR^LAST and TUESDAY^NEXT. All these signs conform to the time line strategy. Time lines are relevant to the discourse level as well, since different events can be spatially projected to different points of the time line.

Three types of time lines are distinguishable in LIS: a basic time line, a sequence time line, and an anaphoric time line. The former is set perpendicularly to the signer's body and extends forward from his dominant shoulder, as shown in the picture below.

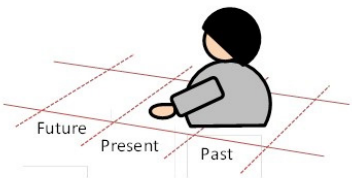

Figure 6 The deictic time line in LIS

The default use of the basic time-line is deictic, namely it refers to the time of the utterance. The temporal description involves a symbolic use of the signing space; according to this strategy, time information referring to the past is signed over the signer's dominant shoulder, present information is signed right in front of the signer's torso and the future is realised in the area further away. The example below shows the use of the basic time line.

UNIVERSITY IX$_1$ START THREE^YEAR^LAST
'I started the university three years ago.'

The sequence time line is parallel to the signer's shoulders and extends from left to the right on the horizontal plane. It represents early to later periods or moments in time.

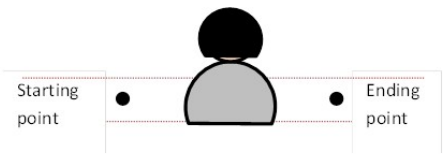

Figure 7 The sequence time line in LIS

In the sequence time line, hours, days, weeks, months, years, seasons, and general periods of time may be articulated. The example below shows such use.

MONDAY UNTIL FRIDAY IX_1 WORK++
'From Monday to Friday I work continuously.'

Another strategy to indicate hourly sequences is to place hours around an imaginary clock in the vertical plane in front of the signer's body, as shown in the example below.

SCHOOL IX_1 STAY AT _ $EIGHT_{[contra]}$ AT _ $NINE_{[contra\_up]}$ AT _ $TEN_{[up]}$ UNTIL
AT _ $TWO_{[ipsi]}$ GO _ OUT
'I remain at school at eight, at nine, at ten… until two, when I go out'.

The anaphoric time line follows an imaginary diagonal trajectory. Anaphoric temporal references are determined within the discourse and are expressed with respect to a point of reference marked along this line. In the sentence below, the point of reference is represented by the birth of the signer's nephew, which is signed close to the signer's body on the ipsilateral side. The move to Bologna realises a relation of posteriority and is expressed farther from the signer's body on the contralateral side.

NEPHEW BE _ BORN IX_1 BOLOGNA MOVE
'After my nephew was born, I moved to Bologna'.

8.3 Perspective

Events in LIS can be represented by a specific perspective, depending on the way the referents are localised in the signing space. Two main types of perspective representations exist: the observer perspective, where the signer assumes an external point of view, and the character perspective, where the signer takes on an internal point of view. In the first case, the signer presents a description of the whole event mapping the entities in a reduced size onto the space in front of the signer's body. In this case, the entity classifiers [MORPHOLOGY 5.1] are the mostly used strategy for reproducing the event. The observer perspective is shown in the example below.

FRANCE IX(loc) PROTEST CL(4): 'people_in_parade' CL(5): 'crowd_be_located'
'In France, many people are protesting in a parade.'

Differently, in the case of the character perspective, the signer represents the event by assuming the role of an entity involved in the event [PRAGMATICS 6]. In such case, the integral perspective is mostly represented through the use of handle classifiers [MORPHOLOGY 5.1.1]. As shown in the example below.

rs: father
FATHER POSS$_1$ BOWL$_a$ SOUP$_a$ CL(closed G): 'handle_spoon' DELICIOUS
'My father was eating a soup with a spoon and said that it was good.'

Another way to encode spatial relationships between referents is the frame of reference systems. These systems are distinguishable into two different types. The first one is the relative frame of reference and it describes spatial relationships between ground and figure by assuming the signer's perspective. In this case, the signer places the entities in space assuming as reference point his perspective, as shown in the sentence below.

TREE CL(5): 'be_at'$_{[right]}$ HOUSE CL(spread curved open 5): 'be_at'$_{[left]}$
'The house is to the left of the tree'.

The second system is the absolute frame of reference, which is not based on the relative positions of the entities, but on conventional and absolute referring points, such as cardinal directions or real geographical locations. The following sentence shows this case.

wh
DOME MILAN CL(spread curved open 5): 'be_at' DIRECTION WHICH
DIRECTION O-V-E-S-T
'The front of the dome of Milan is directed toward the West.'

It is likely that a relative frame of reference occurs together with an external perspective, namely the observer perspective. On the contrary, the absolute frame of reference is mostly found with a personal point of view, that is the character's perspective.

Information on Data and Consultants

The descriptions in these sections are based on the references below and on grammatical judgments. For information on data and consultants see the references. The video clips and images exemplifying the linguistic data have been produced by a LIS native signer coming from the northern part of Italy and involved in the SIGN-HUB Project.

Authorship Information

Chiara Calderone

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9 Figurative meaning

Summary 9.1 Metaphor. – 9.2 Metonymy.

The interpretation of an utterance is not always derived from the meaning of the single signs. Sometimes, a non-literal interpretation may be involved: those cases are known as figurative meanings.

Well-studied forms of non-literal meanings are metaphors and metonymies. These phenomena are generally identified as poetic devices. However, in recent studies, metaphor and metonymy are also conceived of as broader cognitive mechanisms which are important for the building of everyday life meaning.

In sign languages, metaphors are very frequent since in the visual-gestural channel it is possible to map abstract concepts to concrete concepts. A clear example of this linguistic mechanism is the sign UNDERSTAND in LIS which is realised by the action of grabbing something close to the forehead. In this case, the concrete gesture of grabbing something metaphorically recalls the idea of grabbing a concept.

UNDERSTAND

Metonymy is another non-figurative strategy which creates a relation between two concepts or entities, by considering a specific association or a particular continuity between them. The possible metonymic relationships may involve the substitution of a part for the whole,

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a place for an institution, the author for his/her writing, the container for the product, and so forth.

Metonymic processes are not only used as rhetorical strategies, but also as a more common mechanism of word construction in LIS. Some frozen signs have undergone a metonymic process: for example, the sign HOUSE is built upon the classifier for root. In this case, the root, which is a part of the whole entity, becomes the sign for referring to the general concept of the house.

HOUSE

9.1 Metaphor

As stated before, contemporary studies conceive metaphoric expressions as productive cognitive mechanisms which are widespread not only in poetic contexts, but in the expressions used in everyday life. The same holds true for LIS. In the following sections, the cognitive basis of metaphors [PRAGMATICS 9.1.1], the types and the combinations of metaphors [PRAGMATICS 9.1.2], and the metaphors in grammar [PRAGMATICS 9.1.3] are discussed.

9.1.1 Cognitive basis of metaphors

The cognitive process underlying metaphors is a general property which belongs to natural languages. Indeed, many expressions in everyday life are metaphorically derived. Generally, a metaphor is conceived as an abstract concept mapped to and understood through a more concrete concept. The abstract schema through which metaphors are represented is generally X is Y. A common example is the association between the concrete concept of journey and the broader abstract concept of life. Life is often considered as a journey, and consequently other features of the two spheres are combined: for example, the difficulties of life are associated to travel barriers, or the growing process is associated to the process of discovery which is enabled by travelling. Therefore, in the schema below, the X domain (the source) could be interpreted as journey and the Y domain (the target) as life. The internal connections (e.g. x1 – y1, x2 – y2, x3 – y3) can be considered as the associations created between the source and the target domain, as displayed by the figure below.

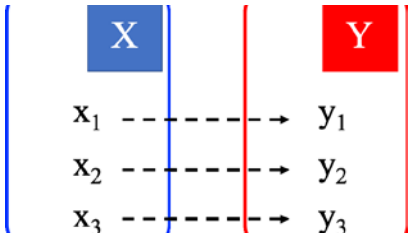


Figure 1 Schema illustrating metaphor mappings (recreated from Quer et al. 2017, 761)

As in other sign languages, some lexical signs in LIS are derived from metaphorical mappings: in these cases, abstract concepts are metaphorically mapped into concrete concepts, which in turns are iconically depicted in signs thanks to the visual-gestural channel.

For example, in the sign CULTURED the dominant hand seems to hold a huge book at the level of the forehead. Therefore, this sign iconically expresses the wide knowledge of someone by representing this knowledge as a big book in the head, as shown in the picture below. The non-manual markers associated with this sign, namely teeth on the lips and squint eyes, are typically used with an evaluative function [PRAGMATICS 2.2.1], enhancing the idea of a wide knowledge.

CULTURED

In this case, a concrete concept (the book) is metaphorically mapped to the abstract meaning of the sign (the fact of being well educated).

9.1.2 Types and combinations of metaphors

Metaphors are also useful for understanding complex meanings since they can map abstract concepts to concrete experiences. Primary forms of metaphors, namely very basic types of metaphors, display an embodied experiential basis. To illustrate, the concept of intimacy is mapped to

spatial closeness, or a great amount or degree is mapped to the high part of the signing space. The example below shows the metaphor intimacy is closeness: in particular, the fact that the signer and his/her friend are placed in close locations in space reflects their close relationship.

IX$_1$ FRIEND IX$_{a\ 1}$COMMUNICATE$_{3a}$
'I have an intimate conversation with a friend of mine.'

The following example illustrates another metaphoric use of space: the price raise in the housing market is visually represented by the upward movement.

MARKET HOUSE MONEY MONEY_RAISE
'There is a price raise in the housing market.'

Another basic category of metaphors consists in mapping a thought, a feeling or an emotion to a concrete object. In the following sentence, the expression of personal thoughts is metaphorically conveyed through the concrete act of handing something to someone, as shown below.

IX$_1$ THOUGHT $_1$CL(spread curved open 5): 'give_from_inside'$_2$
'I let you know my thoughts.'

Moreover, the fact that signs for emotions (e.g. LOVE) are often placed in the chest, while signs for cognitive processes (e.g. THINK) are located close to the forehead of the signer is another basic use of metaphors.

Lots of metaphors in LIS display this specific connection between an abstract concept, such as a feeling or a cognitive activity, and the place of the body in which people culturally or visually locate these elements. For example, a very common metaphor which has become an idiomatic expression in LIS is the combination of the signs HEART BLACK to mean a negative disposition, shown in the video below.

HEART BLACK
'Mean'

Such expression requires that both signs are produced close to the heart. Note that the sign BLACK is conventionally articulated on the signer's forehead. The fact that in this specific expression it is moved to the heart visually enhances the power of the metaphor. This suggests that metaphoric processes are creative and productive and belong to the dynamic part of language.

A famous expression is PERCEIVE_WITH_MENTAL_EYES. In this case, we can observe the displacement of the sign PERCEIVE, which is generally articulated close to the eyes, in an unusual, but metaphorically

significant location: the forehead. Such displacement indicates that this kind of perception is referred to the mind rather than to the eye. The example of this use is shown below.

PERCEIVE_WITH_MENTAL_EYES
'Perceive something mentally.'

Interestingly, such creative processes do not only concern the poetic domain or idiomatic expressions, but are also used for referring to everyday life. An example is represented by the metaphorical use of the LIS sign UNIVERSITY. In its citation form, this sign is realised with a forward path movement starting from the signer's forehead combined with a closing secondary movement (a). The metaphoric version of UNIVERSITY is realised with the same closing secondary movement combined with a slightly different path movement: at the beginning the hand moves forward, but then it suddenly moves downward (b). This particular form makes reference to a not serious attitude toward academic studies.

a. UNIVERSITY (citation form)

b. UNIVERSITY (metaphoric use)
'Superficial attitude toward university.'

In other cases, a metaphoric use in LIS is the transliteration of an Italian metaphor. For example, the Italian idiomatic expression *avere i capelli dritti* (Eng. 'be surprised or scared', literally '(to) have straight hair'). In LIS, the sign derives from the Italian version, but the idiomatic use has been visually adapted by taking advantage of the visual description of such expression, as shown in the example below.

STRAIGHT_HAIR
'Being scared of something.'

These and many other metaphorical processes in LIS show that signers can resort to metaphor for the creation of new meanings.

9.1.3 Metaphors in grammar

In LIS, as in other sign languages, metaphorical mapping can also be responsible for grammatical features, such as verb agreement. In the example below, the verb HEAD^INFLUENCE is based on the following metaphor: a good or bad influence is something that can be represented as moving from an agent to a patient.

HEAD^INFLUENCE
'Have an influence on'

Thus, although the specific verb HEAD^INFLUENCE does not refer to a physical transfer, it refers to a metaphorical transfer.

9.2 Metonymy

Similarly to metaphor, metonymy is another cognitive process which was previously applied to the poetic domain, but it is also used in everyday life. In the following sections, we present the relationship between metaphor and metonymy [PRAGMATICS 9.2.1] and the body parts which establish metonymical relations capitalising on the visual gestural channel of sign languages [PRAGMATICS 9.2.2].

9.2.1 Metonymy vs. metaphor

In metonymic processes, entities which are related for some reason are used one in place of the other. The abstract schema through which metonymies are represented is generally X for Y. In metonymy, the relationship between the two associated concepts or objects has to be close. Indeed, differently from metaphors, metonymic relations involve two related concepts included in the same semantic sphere. The picture below schematizes such mechanism.

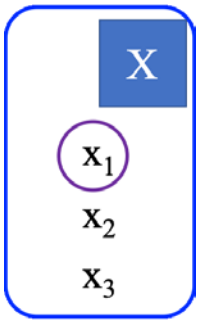


Figure 2 Schema illustrating a metonymic relationship (recreated from Quer et al. 2017, 764)

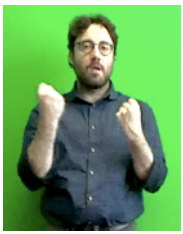
One of the most common types of metonymy is synecdoche, a relationship in which a part of an object stands for the whole entity. In

this case, as illustrated in the picture above, the macro-domain of an entity or of a concept is decomposed into several smaller sub-components.

LIS, as other sign and spoken languages, displays lots of linguistic uses of this type. For example, in the video below, the signs FACE NEW stands for a new person. Therefore, the signer selects one single aspect (i.e. the face) of the domain to denote the whole entity (i.e. the person).

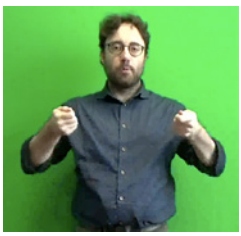
IX$_1$ SEE FACE NEW
'I see a new face.'

Lots of signs in LIS have been generated by this type of metonymic process, so that many frozen signs are inherently metonymic. For instance, many of the signs derived from handle classifiers [MORPHOLOGY 5.1.3] display a part-whole relationship. An example is shown by the picture below in which the sign for the steering wheel is used to refer to the whole entity, the car.



CAR

Similarly, the sign POT derives from the way in which a pot is commonly grabbed, namely by its pot-handles.



POT

Another type of metonymic relationship is the producer who stands for the product. For example, in the case of movies or books, the name of the director or the author might be employed in substitution of their intellectual product. The example below displays one of

these cases in which the Italian writer Dante is used in place of his well-known poem the 'Divina Commedia'.

IX$_1$ DANTE IX READ
'I read Dante (Dante's poem).'

A similar case might happen with other types of products, such as the brand of a car which stands for the car itself, as in the example below.

IX$_1$ MERCEDES IX$_1$ BUY
'I bought a Mercedes (a Mercedes car).'

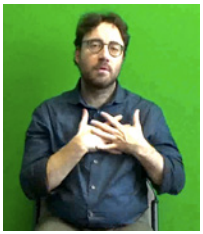
Another type of metonymic relationship consists in substituting an institution with the place related to that institution. In the example below, the building which represents the seat of the Senate of the Italian Republic, Palazzo Madama, is used for referring to the Senate itself.

PALACE IX M-A-D-A-M-A LAW APPROVE
'Palazzo Madama (the Senate) has approved the law.'

Metonymy in LIS is also realised in the relationship effect for cause. In the following example, the concept of being weak is realised through the mention of having trembling legs.

BROTHER$_a$ POSS$_1$ IX$_a$ CHARACTER WEAK
'My brother has a weak character'.

Both metonymy and metaphor show a widespread use in LIS discourse. Sometimes, it may be hard to distinguish between the two phenomena. For example, the fact that a verb referring to a feeling such as LOVE is articulated on the signer's chest may be interpreted either as metaphor or metonymy.



LOVE

This case can be analysed as metaphor if we consider that the chest is metaphorically conceived as the container of emotions. However, it can also be analysed as metonymy as the chest stands for the locus of emotions.

9.2.2 Body as metonymy

Metaphoric expressions involving emotional experiences can also be considered as cases of metonymy. Indeed, physical effects of specific emotions can be conceived as different aspects belonging to the same domain. In LIS, an example of this association can be the sign TEMPERATURE_RAISE used in young signers' slang to refer to the effects of a sexual arousal triggered by signing with a desired person.

WOMAN IX$_1$ $_1$COMMUNICATE$_3$ SIGN IX$_1$ TEMPERATURE_RAISE
'The conversation with the woman turned me on'.

Information on Data and Consultants

The descriptions in these sections are based on the references below and on grammatical judgments. For information on data and consultants see the references. The video clips and images exemplifying the linguistic data have been produced by a LIS native signer coming from the northern part of Italy and involved in the SIGN-HUB Project.

Authorship Information

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10 Communicative interaction

Summary 10.1 Discourse markers. – 10.2 Turn taking. – 10.3 Back-channeling. – 10.4 Repairs.

Communicative exchanges are based on the way in which participants organise and manage their interaction. Interactive communication between two or more participants is generally subdivided into reciprocal turns of dialogue. Turn taking can be signalled by specific turn-taking cues which occur at the end of the turn and allow the interlocutor to understand that a part of an interaction is concluded. Such interaction cues are called *turn-taking signals*.

During conversations, there are specific moments in which it is possible to take the turn: these moments in a discourse are generally defined as *Transition Relevance Place* (TRP). A TRP, which offers the possibility of changing the turn, can be marked by lexical or prosodic devices, such as discourse particles [PRAGMATICS 5]; [PRAGMATICS 10.1] or some specific modifications in the intonational contour. When a signer takes the turn and no signals have previously been established, this act is considered as a turn interruption.

Moreover, in a communicative exchange, the addressee can provide response, feedback, signals of confirmation or refusal. This behaviour, which is called *back-channelling*, is functional to the process of building a conversation among participants [PRAGMATICS 10.2].

Finally, a participant can add some contribution to the discourse made by the turn-holder, by correcting some information, repairing

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a content, providing comments or clarifications. These attitudes are known as *actions of repair* [PRAGMATICS 10.3].

10.1 Discourse markers

Discourse markers are those overt or covert linguistic signals which fulfil the function of supporting discourse management, enhancing the textual coherence, and revealing the signer's attitude toward the conversation [PRAGMATICS 5]; [PRAGMATICS 7]. Discourse markers may serve as landmarks in signalling how the conversation is being structured and how the turns are being regulated. In the example below, the sign WELL fulfils the function of marking the initial part of a turn.

WELL IX_2 HOPE IX_{2pl} UNDERSTAND IX_1 EXPLAIN
'Well, I hope you understood what I explained.'

10.2 Turn taking

A turn is considered as a period in the conversation in which one of the participants actively signs. The temporal organisation of a conversation is based on the alternation of turns between participants. The ability to take and manage conversation turns is known as turn taking.

10.2.1 Types of turn taking constructions

Turn-taking processes are distributed along a continuum in which the two extreme poles display two specular situations. The first pole concerns a conversation in which the signer keeps the turn and the addressee just watches, before the turn is allocated to another participant. The second pole refers to a situation in which two or more signers overlap continuously in the conversation resulting in either a competitive or a cooperative exchange.

In the following sections, three types of turn-taking patterns are discussed: i) smooth turn taking [PRAGMATICS 10.2.1.1], ii) turn taking with pause [PRAGMATICS 10.2.1.2], and iii) overlapping turn taking [PRAGMATICS 10.2.1.3].

10.2.1.1 Smooth turn taking

In a smooth turn-taking situation, one participant holds the turn and when s/he finishes to express her/his contribution, the turn is allocated to another participant. Such transfer happens in a very smooth way, without pause or strong overlapping between signers, as shown in the example below.

A: YESTERDAY PARK IX_1 DOG IX CL(curved open V): 'be_at'++ IX_1 SEE
B: MAYBE BROWN HAIR_ALL IX_1 SEE DONE IDENTICAL IX_1 SEE DONE
'Yesterday, in the park I saw a few dogs.' 'Maybe I saw the same brown dogs.'

What follows is the schematic representation of a smooth turn-taking.

A: SIGN SIGN SIGN
B: SIGN SIGN SIGN

10.2.1.2 Turn taking with pause

A different case arises when the turn transition among participants in a conversation is mediated by a pause or a linguistic element which fills the pause, such as YES, WELL, GOOD. The example below shows such case.

A: TODAY WORLD STRANGE WORLD IX DANGEROUS
B: YES TRUE SEE EXAMPLE IX RIVER WATER CL(5): 'water_rise' CL(5): 'water_overflow' PAST FEW
'Nowadays the world is strange, it's dangerous.' 'Yes, true, for example the water in the rivers rises and overflows, but it was infrequent in the past.'

The following schema summarises the pattern of turn taking with a pause.

A: SIGN SIGN SIGN
B: [pause filling material] SIGN SIGN SIGN

10.2.1.3 Overlapping turns

The third type of turn taking concerns those situations in which two or more signers communicate simultaneously and overlap each other. There are various possible reasons for such overlapping behaviour. It can happen, for example, when two signers both contribute to a dia-

logue resulting in a joined turn construction, as in the example below.

A: FINALLY WORK FINISH IX_2 RELAX IX_2 RELAX
B: IX_1 RETIREMENT IX_1 KNOW IX_1 SLIDE FIVE IX_1 FINALLY

A: IX_2 YEAR^FIVE DOCUMENT HOW
B: IX_1 GO_OUT YOUNG BEFORE

A: YES KNOW++
B: IX_1 $_1$EXPLAIN$_2$ IX_1 $_2$COME$_1$ HOUSE POSS$_1$
'Finally you stopped working, now you can relax!' 'I am retired, I know, thanks to the policy of the "5-year slide". Finally! I retired earlier and I'm still young.' 'How did you sort out the papers for the 5 years?' 'I will explain it to you at my place'. 'Yes, that's fine.'

A different situation arises when the two signers compete for taking the turn. An example of such competitive dialogical construction is presented below.

A: $Q_{artichoke}$ POLITICS^AREA IX_1 TRUST ZERO IX_1 BE_FED_UP
B: IX_1 BE_FED_UP SUCK IX_1 TRUE

A: IX_1 VOTE IX_{3pl} NO_MORE
B: BETTER VOTE NEED EXIST.NOT BUT IX_1 NEED LAW HUNDRED^FOUR $Q_{artichoke}$

A: $Q_{artichoke}$ C'MON EXIST EXIST.NOT IX_1 IMPOSSIBLE_NO_WAY
B: $Q_{artichoke}$ NEVER APPROVE PE
'I've no trust in politicians!' 'I'm fed up! It sucks!' 'I'm fed up!' 'Well, it's better not to vote.' 'I don't vote for them anymore!' 'But I need the law 104, so when?' 'When?!' 'When? It will never be approved!' 'C'mon, no way!'

Regardless of the reason for the overlapping turn taking, the general model for this type of dialogue is reported below.

A: SIGN SIGN SIGN
B: SIGN SIGN SIGN

10.2.2 Turn taking signals

In dialogical exchanges, turns are regulated by turn taking signals. These cues may be produced by either the turn-holder or the interlocutor and may fulfil a variety of pragmatic functions.

10.2.2.1 Different turn taking signals

People who hold the turn may send several cues to their interlocutors. A signer can send a turn-yielding signal alerting the addressee that he/she is ready to allocate the turn. Moreover, the signer can send attempt-suppressions signals showing that s/he does not intend to pass over the turn. In other cases, the signer can show within-turn signals which should evoke feedback or back-channel signals by the interlocutor.

On the other hand, the dialogue partner can send back-channel cues or turn-claiming signals in order to show her/his attitude toward the dialogical exchange. As for back-channel signals, the addressee may provide some response to the communicative contribution of the signer, without showing the intention to take the turn. On the contrary, in case of turn-claiming signals, the addressee clearly calls for taking the turn in the communicative exchange.

10.2.2.2 Turn-yielding signals

Turn-yielding signals have the function of informing the dialogical partner that the turn-holder is ready to pass over the turn. Various elements may be involved in conveying such message, both manual and non-manual [PRAGMATICS 5]. As for manually produced signals, discourse particles can be used with the function of marking the conclusion of a turn. In the example below, the discourse particle ANYMORE fulfils the function of marking the end of the communicative turn.

IX$_1$ DOCUMENT EVERYTHING IX$_1$ $_1$CL(flat open 5): 'give'$_3$ DONE ANYMORE
'I gave (them) all the document, that's enough.'

The signer can also display variation in the speed and the amplitude of the signing, for example reducing the speed of signing and the signing space. In this way, the partner is encouraged to take the turn. An example of this strategy is reported below: in the first part of the utterance (from the beginning to CL(unspread 5): 'search_pockets') the rate of signing is high, but it clearly decreases in the final part of the sentence (from the sign BACKPACK to the end).

IX$_1$ BE_SCARED IX$_1$ BUS IX$_1$ CL(curved open V): 'get_on' IX$_3$ MAN CONTROL TICKET. IX$_1$ POCKET EMPTY CL(unspread 5): 'search_pockets'. BACKPACK IX$_1$
CL(flat closed 5): 'grab_ticket' THEN $_1$GIVE$_3$ VALIDATE$_3$ IX$_1$ RELAX
'I was scared, as soon as I got on the bus, the inspector was controlling the tickets. I looked for my ticket, but my pockets were

empty. I looked in the backpack, I found it! I gave it to the inspector. He validated it and I felt relieved.'

10.2.2.3 Turn taking signals

In LIS, it is possible to mark a TRP in several ways. More commonly, the position of the hands communicates the intention to participate or not in the conversation. Some of these positions are displayed in the pictures below.

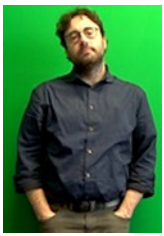


Figure 1 Hands in pockets

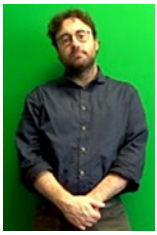


Figure 2 Hands at rest

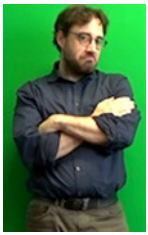


Figure 3 Arms crossed

Hands in pockets, hands at rest, and crossed arms signal that the participant is not interested in taking the turn.

Another strategy for sending turn-taking signals consists in touching the partner as a way to call her/his attention and start a new turn, as exemplified in the picture below.

Figure 4 Turn-taking tactile signal used to start the turn

A third type of strategy concerns the use of cues which can explicitly signal the point of a turn taking. These cues may concern prosodic changes in the speed or size of signs, especially at the end of a turn. The possibility to allocate the turn to another participant may also be marked by non-manuals produced by the signer at the end of an utterance, such as eye blink and head nod. Some of the abovementioned turn-taking signals are illustrated in the example below.

eb
A: YESTERDAY UNIVERSITY STUDENT CL(5): 'crowded' IX LESSON START DONE
B: <hands at rest>

A: <arms crossed>
---

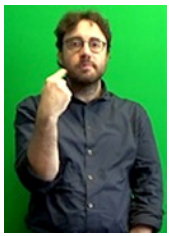
eb hn
B: TRUE IX$_1$ ROOM LITTLE NEED OTHER BIG SIT++ ALL

A: 'Yesterday, at the university, it was very crowded, when the class started.
B: 'True, the classroom is little. We need another bigger classroom, so that everyone can have a sit.'

The example displays various turn-taking cues. Signer A, for example, crosses his arms at the end of his turn. While watching, signer B' hands are at rest, he decides to intervene to contribute to the conversation. The eye blink is a non-manual cue used to end both Signer A's and Signer B's turn.

10.3 Back-channeling

As mentioned before, back-channel cues serve to signal the addressee's attitude toward the communicative exchange. The addressee's response can be of various types: for example, the interlocutor can express an affirmative (a-b) or refusing (c) attitude toward the conversation content.



a. PE

b. YES

c. HOLD_ON

Other functions of back-channelling signals concern the possibility for the addressee to comment on a statement, clarify an information, complete an utterance, and so forth. Back-channelling is also used for showing a phatic behaviour with respect to the interaction, displaying interest in the communicative exchange.

Back-channelling involves both manual and non-manuals strategies. The example below shows a short stretch of communicative ex-

change in which Signer A shows interest and confirms the content of Signer B's comment.

A: YES YES
B: KNOW IX_1 TEACH BUILDING++ VARIOUS. IX_1 $_1$GO++ IX_1 TEACH

A: KNOW++
B: DONE RUN $_1$GO++ IX_1 EXIST.NOT BE_FED_UP IX_1 EXIST.NOT ANYMORE

A: WELL UNDERSTAND++
B: IX_1 PE NOT IX_1 MUST $_1$$ASK_3$ T-R-I-B-E-L-L-I_3 IX_1 CHANGE

A: 'Yes' 'Yes'
B: 'You know, I teach in several buildings, I keep running around.'

A: 'I know, I know'
B:'When I finish teaching in a place I have to run to another one. No way!'

A: 'Right' 'I see, I see'
B:'I'm fed up, no way! I have to ask Tribelli for a change.'

10.4 Repairs

Conversational repairs are used for several reasons and fulfil various communicative functions. Generally, repairs serve to correct a statement which is considered wrong by the signer or the addressee. Repairs can also be used to add a comment to the content expressed by the turn-holder. Moreover, repairs occur when the signer is looking for a specific sign or when s/he tries a self-rephrasing. Repairs can be realised manually (e.g. a manual negation) or non-manually (e.g. a head shake). A strategy which is common in sign languages is represented by repairs connected with the signing space. An example of corrective repair capitalising on the signing space is presented below.

A: TWO TWIN IX_1 BE_FAMILAR IX_a S-A-R-A_a IX_b M-A-R-C-O_b

A: IX_{3b} HAIR BLACK IX_{3a} HAIR BLOND
B: NOT, IX_{3a} BLACK IX_{3b} BLOND CONTRARY

A: 'I know two twins: Sara and Marco, he has black hair and she is blond.'
B: 'No, she has black hair and he has blond hair. It's the opposite.'

Information on Data and Consultants

The descriptions in these sections are based on the references below and on grammatical judgments. The video clips and images exemplifying the linguistic data have been produced by LIS native signers involved in the SIGN-HUB Project.

Authorship Information

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References

Gianfreda, G. (2011). *Analisi Conversazionale e Indicatori Linguistici Percettivi e Cognitivi nella Lingua dei Segni Italiana (LIS)* [PhD dissertation]. Macerata: Università degli Studi di Macerata.

11 Register and politeness

Summary 11.1 Register. – 11.2 Politeness.

The term *register* refers to the relationship between the form of a language and the context in which the language is used. It also relates to some kinds of linguistic variation that are triggered by specific communicative situations. Indeed, every speaker tends to adapt his/her language to the context and to the specific features of certain communicative situations.

Generally, registers are considered from three different perspectives: the tenor, the mode and the field involved in the communication. As for the tenor, it refers to the communicative interactions set among the participants, with a special attention on the role the participants play within the communicative exchange and to the social relations which hold among them. The mode relates to the channel, that consists of all the types of communicative means which can be used (such as the spoken, sign, or written channel), the linguistic code in use (Italian, English, LIS), the level of preparation of the discourse (spontaneous or previously planned), and the genre and the style of the communicative interactions, for example narrative, didactic, informative, or persuasive. Finally, the field concerns the whole communicative event, in his general features relating to the topics of the communications or to the matter.

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Politeness is the way in which people try to show their awareness in protecting the public self-imagine of the other people they are communicating with. It consists of a range of social skills which facilitate the self-perception of the participants among the different social interactions. It is also related to the concept of face, namely to the concept of public self-imagine that everyone would like to protect across the communicative exchange with other people.

11.1 Register

Sign languages are languages which present a smaller spectrum of registers in comparison to spoken languages. This is primary due to the lack of a written form, which typically triggers standardisation processes. Indeed, sign languages still display a high level of heterogeneity and linguistic variation.

However, different communicative situations may trigger in signers a certain amount of linguistic variation within the discourse event. Such variation is detected at multiple levels of sign languages, i.e. at the phonological, lexical, morphological, and syntactical level.

At the phonological level, variation may concern the difference in the use of the signing space, the duration of signs, and the frequency of phonological assimilation. From the lexical and morphological perspective, modifications involve the amount of iconicity and the non-manual marking used within the conversation. Syntactically, specific contexts may affect the amount of topicalisation and the different use of classifiers and discourse particles.

Linguistic variation in LIS can be clearly observed when comparing formal and informal contexts. An example of formal discourse is one produced by a signer giving a talk in front of a large audience at an important meeting. On the other hand, an example of informal discourse is a conversation between friends at a coffee house. These two types of contexts are likely to differ with respect to several aspects.

Prosodically, formal environments usually trigger a reduction of the signing space, and the absence of emphasis or prominence in the use of non-manual markers, especially in the use of facial expressions. Conversely, in an informal context, signs tend to be realised in a larger signing space. This difference in movement amplitude can be observed in the screenshots below, showing the realisation of the sign COME_BACK in a formal (a) and informal (b) setting.

a. COME_BACK (formal)

b. COME_BACK (formal)

This verb is produced with a different amplitude in the two contexts: in (a) the use of the signing space is visibly smaller than in (b).

Another difference that can be observed is the use of non-manuals. In formal signing, the torso is mostly straight and moves little, while in informal signing the body posture is more dynamic. Also, in informal discourse facial expressions tend to be more emphasised, similarly to what happen in spoken languages with intonation contours.

Lexically, formal discourse may include less frequent signs and technical terminology. For example, signers may produce specialised terms. In the example below, the technical term RESEARCH^WRITTEN_TEXT is produced accompanied by the mouthing of the equivalent Italian word (‘perizia’).

‘perizia’
IX$_1$ TASK FOCUS RESEARCH^WRITTEN_TEXT
‘My task is to focus on the (judicial) examination.’

To convey specific Italian terms or acronyms, fingerspelling is typically used.

IX$_1$ WORK WHERE UNIVERSITY CA_FOSCARI INSIDE. IX$_1$ ROLE WHICH C-E-L
MEANING COLLABORATE EXPERT LINGUISTICS
‘I work at Ca’ Foscari university. I am a CEL, namely a Language Collaborator and Expert.’

By contrast, daily and more common signs are used in informal discourse. For example, in such context, signs like FUSSY (a) and BETTER_AVOID (b) may be used.

a. PE IX(unspread 5)$_3$ FUSSY++ PALM_UP
'She is so fussy.'

b. IX$_1$ SIGN $_3$LOOK_AT$_1$ BETTER_AVOID
'I'd better avoid signing if s/he is looking at me.'

At the beginning of informal exchanges, signers frequently attract the addressee's attention by waving the hand(s).

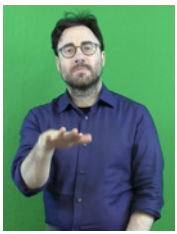

Figure 1 Attention-getter signal

From a morphological perspective, formal discourse is characterised by a lower degree of iconicity and less marked non-manuals, while in informal discourse iconicity is more extensively used and non-manual strategies are frequently involved in morphological processes.

Syntactically, it is possible to notice the accuracy in organising the information. The sentences are clearly structured, using a major amount of linguistic connective items, such as the signs REASON, THEN, or CONSEQUENCE. Repetition is preferred, avoiding a large amount of inference or ellipsis in the discourse, in order to convey the message unambiguously. As shown above in the sequence of signs IX$_1$ WORK WHERE UNIVERSITY CA_FOSCARI INSIDE, formal discourse frequently involved question-answer pairs. On the contrary, in informal discourse it is possible to observe a larger use of role shift, which allows the signer to take the perspective of a salient referent. Topicalisation and syntactic emphatic strategies, such as focus, are also more common in informal situations.

Another type of register, generally developed by a sub-group of people who want to increase their identity and cohesion, is slang. Young people are very likely to develop their own slang in order to: i) reinforce the sense of belonging to their group or ii) create an alternative communicative system which makes their conversation se-

cret and unintelligible to the comprehension of adults. The main productive topics in terms used by Italian young people's slang revolve around school, music, sexual sphere, drugs, politics, sport, appreciations or insults and peer group phenomena. Similarly, in LIS, these fields are particularly full of slang words created through specific linguistic processes, as for example: metaphors, metonymies, synecdoches, neologisms, play on sign modification, hyperboles, iconicity or specific uses of classifiers.

An example of a slang sign based on metaphors is the sign SALAD, displayed in the example below, which refers to the marijuana. The comparison is based on the fact that both of them are green and look like grass.

SALAD
'Marijuana' (based on Fedeli 2015, 86)

Another type of linguistic strategy used for creating slang is based on metonymic processes, namely on that mechanism which replaces a name of the referred entity with the name of something else that is closely bound to it. For example, indicating the cause in place of the effect, or the container in place of the content. In LIS, an example of this type of metonymy-based sign is TEMPERATURE which refers to the sexual excitement condition and may be explained as the result of the body response when someone is in this particular state. The sign for TEMPERATURE is shown below.

TEMPERATURE
'Sexual excitement' (based on Fedeli 2015, 92)

Another type, among others, of linguistic tool involved in the generation of new slang signs is the hyperbole. It is generally used with the intention of exaggerating or emphasizing a concept. A slang sign which uses this strategy is ESSAY. It is signed by young signers as a critique when someone is talking too much. The sign is provided below.

ESSAY
'Long-windedness' (based on Fedeli 2015, 94)

Other strategies may be the completely new creation of a sign, therefore a neologism, or the modification of an existing sign in order to create a humoristic effect or to mask some secret meaning. An example of neologism is the sign NOT_REALISE below, which aims at insulting people considered clumsy. It is signed with particular non-manual components: body leaning forward, semi-closed eyes and protruding tongue.

NOT_REALISE
'(To) not realise/notice something' (based on Fedeli 2015, 97)

An example of a modified sign is HUMBLE. The citation form is realised with a backward movement, as shown below.

HUMBLE

In the slang used by young signers, this sign can be slightly modified to convey the signer's disagreement about the assumed humble attitude of a person. Specifically, the modified version of the sign is realised with a forward movement.

HUMBLE$_{[forward]}$
'Not humble' (based on Fedeli 2015, 101-102)

Also, classifiers may be used in order to generate new slangs. The example below displays a classifier indicating the legs of a woman to convey the meaning 'sex'.

CL(curved open G): 'spread_legs'
'Sex' (based on Fedeli 2015, 104)

11.2 Politeness

The concept of politeness and impoliteness changes cross-culturally and differs from language to language and from country to country. Interestingly, LIS makes a different use of para-linguistic strategies, as for example the personal and body contact with respect to spoken Italian. Indeed, due to the visual-gestural channel, in LIS the proxemics is reduced for linguistic and functional reasons. Proxemics refers to those implicit rules in a communicative exchange that establish the physical distance to be kept among participants in order not to be impolite. The physical contact is part of this proxemics sphere and the parameters in which it is allowed in a communication may change geographically and culturally. In spoken Italian, the vocal-auditory channel contributes in creating a barrier between interlocutors, and restricts the use of physical contact to more confident relationships, for example in a familiar environment or with friends. Physical contact in spoken formal conversations would be considered as rude or inappropriate. By contrast, in LIS, having a manual or physical contact during the signed conversation is not considered rude or impolite, but functional to some linguistic needs. For exam-

ple, in a group conversation, if a signer needs to focus the attention of a certain participant who gives the shoulders to him, it is completely acceptable to call him by touching his/her shoulder.

However, depending on the use of the body, it is also possible to act impolitely, for example, to turn one's back in front of someone who is signing is considered a clear signal of communicative disregard.

In situations where the communicative exchange starts to become tense, in order to mitigate an unpolite behaviour, some signs may be used by the participants at the conversation who want to keep a peaceful atmosphere, as for example the sign HOLD_ON (a) or QUIET (b).

a. HOLD_ON
'Wait a moment'

b. QUIET
'Be quiet'

Some linguistic strategies referring to polite manners may also be conveyed through the use of non-manual markers, which may correspond to specific vocal uses and intonations in spoken languages. LIS disposes of a particular protrusion of the lips in order to emphasize a major politeness in the request, as displayed in the example below.

y/n
IX_1 $_1ASK_2$ CAN IX_1
'May I ask a question?'

A similar use is also shown in the example below.

y/n
IX_1 INTERVENE CAN IX_1
'May I interject?'

Information on Data and Consultants

The descriptions in these sections are based on the references below and on acceptability judgments. For information on data and consultants see the references. The video clips and images exemplifying the linguistic data have been produced by a LIS native signer coming from the northern part of Italy and involved in the SIGN-HUB Project. Data have been collected by the author.

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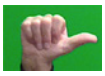
Appendix: List of handshapes

In this section, we report the labels we adopted to refer to LIS *handshapes*. Notice that these conventions are followed in all the Parts of the grammar.


S

G

Curved open G

Closed G

3/5

I

L

Flat open L

Flat closed L

Curved open L

F

Flat open F

Flat closed F

Curved open F

8

V

Unspread V

Curved open V

Y

U

3

Flat open 3

Flat closed 3

Cured open 3

4

Flat open 4

5

Unspread 5

Flat open 5

Flat closed 5

Spread curved open 5

Unspread curved open 5

Curved closed 5

Closed 5

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Glossary of grammatical terms

Action role shift
Also called constructed action, action role shift is a construction where the signer takes the role of another character. Under action role shift, the signer may shift his/her body toward the position associated to the character and his/her facial expressions indicate how the character feels and his/her gestures reproduce those produced by the character.

Adjective
An adjective is a lexical element that typically specifies a property and that can modify a noun (e.g. clean, red in English).

Adjunct
An adjunct is an optional constituent that is not selected by any other word present in the sentence. Rather, an adjunct is attached to some other constituent of the sentence, modifying its meaning. As such, adjunct is opposed to argument. An adjunct can be a word or a phrase (including clauses). For example, in the sentence "Ada left quickly at five because she was tired", 'quickly' is an adverbial adjunct; 'at five' is a PP adjunct (or an adjoined prepositional phrase), and 'because she was tired' is an adjoined clause. Besides their category, adjuncts are also distinguished according to the constituent they attach to. For example, the sentence 'Ada prefers to look at boys with glasses' is ambiguous due to the constituent the PP adjunct 'with glasses' is attached to. It can either be attached to 'boys', or to some larger constituent including the verb.

Adposition
Prepositions and postpositions, together called adpositions, are a class of words expressing spatial or temporal relations or marking semantic roles. They typically combine with a noun phrase or a pronoun. A preposition comes before its nominal complement; a postposition comes after its complement. In sign languages an adposition marks the (usually spatial) relation between two items.

Adverbial
An adverbial is a constituent that is simplex or complex in form and that functions as an adverb; sometimes used interchangeably with simplex adverb.

Affirmative sentence
An affirmative or positive sentence is a declarative sentence used to express the validity or truth of a basic assertion. As such, it is opposed to a negative sentence. This dimension is often referred to in grammar as polarity.

Affixation / affix
Affixation is a word formation process by which a base (a stem or root) is extended by additional bound material; the items attached in this way are called affixes, they may come before or after a base, break up the base, or appear suprasegmentally.

Agreement
Agreement is an asymmetric relation between two or more constituents, by which one inherits the formal features of the other. For example, in the sentence 'Girls now are moving forward', the copula BE agrees with the subject 'girls' in number (plural) and person (third). This syntactic relation is morphologically expressed in English through verbal inflection, hence the form 'are'. In sign languages, agreement is often expressed through spatial modification.

Agreement verb
An agreement verb is a verb that is lexically defective (i.e. unspecified for one phonological feature) in that it requires syntactic agreement with a person or a locus to be realized.

Alignment
Alignment refers to the temporal coordination of different articulations; e.g. alignment of a non-manual marker with a string of signs, or alignment of various non-manual markers with each other.

Allomorph
Allomorphs are affixes or stems that are identical in meaning but have different phonological forms and are in complementary distribution; allomorphs are variants of the same morpheme.

Allophone
Variants of the same underlying phoneme that are either in complementary distribution or in free variation.

Anaphora
Expression that is referentially dependent on another expression previously mentioned in the context (i.e. the antecedent). In the following example, the pronoun he is co-referent with the antecedent a man: 'Mary saw a man. He was walking home.' Typical anaphoric expressions are pronouns or definite noun phrases.

Antecedent
The antecedent is the expression an anophora is co-referent with, i.e. the anaphora refers back to the referent of the antecedent.

Argument
An argument is a constituent that completes the meaning of a predicate. Most predicates take one, two, or three arguments. For example, the verb 'to run' takes one argument (the subject, as in 'Ada runs'); the verb 'to destroy' takes two arguments (the sub-

ject and the object, as in 'the typhoon destroyed the beach'); the verb 'to send' takes three arguments (the subject, the object and the indirect object, as in 'Ada sent a present to her brother'). Arguments are often associated to verbs, but other syntactic categories can take arguments as well, or select them. For example, the noun 'destruction' can be said to select two arguments, as in 'the destruction of the beach by the typhoon', or the Adjective 'proud' can be said to select two arguments, as in 'Nico (is) proud of Ada'. Arguments must be distinguished from adjuncts, which are never selected and thus optional.

Argument structure
Argument structure refers to the syntactico-semantic frame of predicates (typically verbs, but also nouns, adjectives or prepositions) and indicates the participants in the action or state denoted by that predicate. Argument structure typically includes the number of arguments a lexical item takes (e.g., the participants in the event denoted by a verb), their syntactic category, and their semantic relation to this lexical item.

Article
An article (or determiner) is a functional element that combines with nouns and that specifies features such as number, gender, definiteness, and closeness/distance (e.g. the, a, that in English).

Aspect
Aspect describes the internal temporal structure of an event or situation as reflected in a sentence or verb (e.g. repeated occurrence of an event).

Assimilation
Assimilation is a phonological process whereby the form of a phoneme is influenced by properties (features) of an adjacent phoneme; if the source of assimilation precedes the target, we speak of progressive assimilation, if it follows the target, we speak of regressive assimilation.

Atelic
Atelic eventualities do not contain an end point as part of the event description.

Attitude role shift
Attitude role shift, also called constructed discourse, is a construction where the signer reports utterances or thoughts of another person (the character) and typically does so by rotating his/her body toward the position associated to the character. Attitude role shift is usually accompanied also by a change in head position and eye gaze.

Auxiliary
An auxiliary is a semantically weak verb that combines with a lexical verb and expresses grammatical features like tense, aspect, and agreement (e.g. have and be in English); the lexical verb usually appears in a fixed (e.g. infinitival or participial) form.

Back-channeling
Back-channeling is a discourse strategy by which an addressee provides feedback without interrupting the speaker's/signer's flow; back-channel signals can be manual/vocal (e.g. hmmm) or non-manual (e.g. head nod).

Blend
A blend is a word formation process by which two otherwise independent stems or words merge by losing some of their phonological features to form a new item with a new meaning, e.g. English smog is a blend of smoke and fog.

Borrowing
Borrowing refers to the integration of a lexical item or expression from one language into the lexicon of another language (e.g. German borrowing English computer); borrowed elements may undergo certain phonological changes.

Boundary marker
A boundary marker is a linguistic signal that marks the start or end of a (mostly syntactic or prosodic) domain; can be manual or non-manual.

Buoy
A buoy is a sign articulated by the non-dominant hand, which may be held in space while the dominant hand continues signing; a buoy may be referred to (e.g. pointed at) by the dominant hand.

Calque
A calque is an item which in its entirety, or part-by-part, is borrowed directly from the donor language; Calques are verbatim translations of simplex or polymorphemic forms and are modeled on the constructions of the donor language.

Causative
A causative is a construction that indicates that an agent causes someone or something to do or be something, or causes a change of state. Prototypically, it brings a new argument, the causer, into a clause, with the original subject becoming the object, as in 'John makes Mary cry' vs. 'Mary cries'. All languages have ways to express causativization, but they differ in the means they employ. Many have lexical causative forms, such as English 'raise' vs. 'rise'; Other languages have morphological inflections that change verbs into their causative form. Other languages, and sign languages among them, employ periphrasis with the use of an auxiliary.

Citation form
A citation form is the basic form referring to the dictionary entry of a lexeme. As lexemes are abstract objects, citation forms make it possible to refer to a lexeme.

Classifier
Generally, a classifier is a morpheme that reflects certain semantic properties of a referent; for sign languages, a classifier is a visually motivated (iconically based) lexical/grammatical category, mostly a handshape that combines with certain types of predicates.

Classifier construction
A classifier construction is a complex sign that encodes information about spatial localization and (manner of) motion and that is part of the non-core lexicon.

Classifier predicate
A classifier predicate is a complex predicate made up of a classifier and a verb.

Clause
A clause is the smallest grammatical unit that can express a complete proposition (i.e. a statement that can be either true or false). Typically, it consists of a subject and a predicate, which in turn is prototypically a verb phrase, a verb and its internal arguments.

Cliticization
Cliticization refers to a process whereby a functional element phonologically attaches to a lexical element such that a single prosodic word is created (e.g. English can't and French j'aime); the functional element is referred to as a clitic.

Coalescence
Coalescence refers to a special type of cliticization; most commonly, cliticization of an indexical sign to a preceding symmetrical two-handed sign, such that a single prosodic word is created.

Code-switching
Code-switching refers to a (usually bilingual or multi-lingual) language user's switching between two languages or registers during communicative interaction.

Coherence
Coherence is the semantic continuity of a text or discourse which is determined by semantic and conceptual relations between its parts.

Cohesion
Cohesion are grammatically realized relations in a text or discourse that are used to explicitly link different parts of discourse. Cohesive devices make it possible for the addressee to keep track of the discourse referent.

Common noun
A common noun is a noun that denotes a class or type of entity; a common noun can be a count noun (e.g. book in English) or a mass noun (e.g. rice in English).

Comparative/comparison
Comparison introduces orderings between two or more objects with respect to the degree to which they possess some property. In the prototypical case, a comparison involves two objects that are explicitly expressed ('John is taller than Mary'). However, comparison can be more implicit (in 'John is tall' John's height is evaluated with respect to a contextually determined degree of tallness). Many languages have one or more syntactic constructions specifically encoding a comparison.

Complement clause
A complement clause, or object clause (also called completive) is a subordinate argument clause carrying the syntactic function of an object, as 'that she would do it' in 'Ada promised that she would do it'.

Complementizer
A complementizer is a functional word or a particle introducing a subordinate clause, such as that in English as in "John knows that he is lucky." It is often abbreviated as C.

Complex movement
A complex movement is a movement composed of a change in more than one phonological parameter (e.g. simultaneous change of location and handshape).

Compounding/Compound
Compounding is a word formation process by which two otherwise independent stems or words come together to form a new item with a new meaning; the result is a compound.

Conjunction
A conjunction is a functional element that links phrases, clauses, or sentences; coordinating conjunctions (e.g. English and, but) have to be distinguished from subordinating conjunctions (e.g. English that, because).

Constituent
A constituent is a word or a group of words which function(s) as a single unit within a given syntactic structure. The constituent structure of a sentence can be identified using constituency tests. Typical constituents phrases that can be distinguished according to their category in noun phrases (NP), verb phrases (VP), Adjectival phrase (AP), Adverbial Phrase (AdvP) and the like.

Constituent negation
Constituent negation refers to a type of negation whereby a constituent smaller than the clause is negated, e.g. negation of the verb in I didn't steal the book, I borrowed it.

Contact (in the sense of language contact)
Language contact refers to the circumstances determined by two language communities living side-by-side that allow linguistic patterns and words from one to be used in the other.

Contact (in the sense of phonology)
Contact refers to an articulator physically touching another articulator, a body part, or the torso, or the appearance of an articulator in a location.

Context
The context of an utterance consists at least of the speaker, the addressee, the time and the place of the utterance. Broader definitions of context may also include information about the previous discourse and the communicative situation, shared background knowledge and shared world knowledge among other kinds of information.

Contralateral
Contralateral refers to a location/area on the side opposite of the active articulator.

Control verb
The term control refers to the constructions in which the understood subject of a nonfinite embedded clause is determined by some expression in the main clause. Control verbs (such as promise, order, try, ask, tell, force, yearn, refuse, etc.) obligatorily determine which of their arguments in the main clause controls the embedded clause. Some of them qualify as subject control verbs. 'Promise' is an example, as in 'Ada promised to leave', where the understood subject of 'leave' is obligatorily interpreted as the main subject. Some are object control verbs. An example is 'order', in 'Ada ordered Auguste

to leave', where the understood subject of the infinitive is obligatorily interpreted as the object of the main verb, 'Auguste'. Arbitrary control occurs when the controller is understood to be anybody in general, as in 'Running is good for health'.

Conversion
Conversion (also called zero affixation) is a category-changing process, where the input and output categories are phonologically identical, i.e. where there is no overt affix that bears the information of category change (e.g. walk (N) and walk (V), put (present tense) and put (past tense) in English).

Coordination
Coordination is a non-hierarchical combination of at least two constituents belonging to the same syntactic category, such as noun phrases, verb phrases or clauses, either through conjunction or juxtaposition

Copula
A copula is a word used to relate the subject of a sentence with a non-verbal predicate, such as the word 'is' in the sentence 'Ada is nice'. It is often a verbal element, but it can also be pronominal in nature or suffixal. Many languages have one main copula, others have more than one, and some (including many sign languages) have none.

Correlative
Correlatives are conjunctions that are separated in a sentence but coordinate the constituents they introduce, which have thus the same function. Examples of correlatives in English are. 'both… and', or 'either ..or'. The same term can also be used to refer to the constituents themselves that are coordinated in a correlative structure. For example, 'Ada' and 'Maya' are two correlative noun phrases in 'Both Ada and Maya love to play'. Similarly in 'Either you call or you write a letter", the two clauses can be referred to as correlative clauses. Correlative constructions can also be found in some languages as the functional equivalent of relative clauses: 'the boy was late, that boy called' meaning 'The boy who was late called'.

Co-speech gesture
A body movement, executed by the hand(s) or another body part, that accompanies speech, often to illustrate, supplement, or accentuate the message conveyed in speech; e.g. pointing gesture, thumbs-up gesture, headshake, shrug.

Count noun
A count noun is a noun that can appear in the plural and that may combine with numerals like three but not with quantity expression like much (e.g. book, horse).

Declarative
Declaratives are the most common type of sentences in any given language. They are used to express statements, to make something known, to explain or to describe. As a sentence type, they are usually opposed to interrogatives, imperatives and exclamatives. The corresponding declarative force is specialized to provide new information. Declaratives are typically used to realize assertional speech acts.

Definiteness/Indefiniteness
Definite expressions are noun phrases that denote referents that have the property of being unique ("The book is on the table", where there is just one relevant book in the

context of utterance) or the property of being familiar both to the signer and to the addressee. Indefinite noun phrases denote referents that are not known to the signer but can be known to the addressee.

Deixis
Deixis is a strategy to refer to objects present in the actual context of utterance. Deictic expressions can refer to concrete entities ('I', 'you', 'that (one)') as well to the spatiotemporal coordinates of the context of utterance ('here', 'now', 'yesterday').

Demonstrative
A demonstrative is deictic word (a type of determiner) that specifies which entity a speaker refers to and distinguishes this entity from others; they may e.g. be used for spatial deixis (e.g. English this vs. that).

Deontic modality
Deontic modality refers to the speaker's attitude towards the possibility or necessity of an event, embodied in the notions obligation, permission, prohibition, wishing, desiring, etc.

Derivation
Derivation is a lexical word formation process that creates a new lexeme, mostly by combining a stem and an affix.

Derivational affixation
Derivational affixation is a type of affixation whose function is to create a lexeme associated with an already existing lexeme (e.g. -er in swimm-er); derivational affixation contrast with inflectional affixation which exists solely for grammatical purposes (e.g. agreement morphology).

Determiner
A determiner (or article) is a functional element that combines with nouns and that specifies features such as number, gender, definiteness, and closeness/distance (e.g. the, a, that in English).

Discourse
A discourse is formed by a sequence of logically united utterances, which are also connected to the context.

Discourse marker
Discourse markers are cohesive devises between two utterances (such as connectors or discourse particles) that establish coherence.

Discourse structure
Discourse structure describes the relations between grammatical elements and their effects beyond the sentence level.

Ditransitive
A ditransitive verb is a verb which takes a subject and two objects corresponding to a theme and a recipient. These objects may be called direct and indirect, or primary and secondary. An example of a ditransitive verb in English is 'send', as in 'Ada sent a letter to her friend'.

Domain marker
A domain marker is a phonological signal that spans over an entire prosodic or syntactic domain; can be manual or non-manual.

Dominance reversal
In a dominance reversal, a signer uses his non-dominant instead of his dominant hand for signing; a dominance reversal may be phonologically (e.g. articulatory constraints) or pragmatically motivated.

Dominant hand
The dominant hand is the preferred hand of a signer, i.e. the hand s/he would normally use to articulate one-handed signs.

Doubling (syntactic)
Syntactic doubling refers to the repetition of a morpho-syntactic constituent within a sentence; e.g. doubling of a wh-sign.

Dual
One of the values of the feature number that indicates 'two' of an entity.

Ellipsis
Ellipsis refers to the omission from a clause of one or more words that are nevertheless understood in the context of the remaining elements. There are numerous distinct types of ellipsis, according to the nature of the omitted constituent and to the syntactic context where it occurs. Some of the most common types are briefly described below.
Gapping occurs in coordinate structures: material that is present in the first conjunct can be omitted, i.e. 'gapped', from the second conjunct. The gapped material usually contains a finite verb, as in 'Nico plays the piano and Phil the trumpet'.
VP ellipsis omits a non-finite VP. The ellipsis site must be introduced by an auxiliary verb or by the particle to, as in 'Phil played today, and Ada will tomorrow'.
Sluicing elides everything from a direct or indirect question except the question word, as in 'Ada will call someone, but I don't know who'.

Embedded clause
An embedded, or dependent, clause is a clause that is dependent from another clause in a given sentence. It can be an argument clause or an adjunct (or adverbial) clause.

Embodiment
In the context of role shift, embodiment is understood as a phenomenon whereby the actual signer (i.e. the narrator) of a text or discourse uses his/her body as one of the interlocutors or agents in the narrated discourse.

Entity classifier
An entity classifier (also called whole entity or semantic classifier) is a classifier (handshape) which reflects shape properties of the subject of an intransitive clause (e.g. a car moving).

Epistemic modality
Epistemic modality refers to the speaker's belief or knowledge about an event, embodied in the notions of knowing, believing, assuming, etc.

Ergativity
Ergativity refers to a system of marking grammatical relations in which intransitive subjects pattern together with transitive objects, and differently from transitive subjects. Ergativity may be manifest, for example, in terms of morphological case marking on nominals, or patterns of agreement on the predicate. An example of an ergative language is Basque.

Event structure
Event structure or situation type refers the internal temporal structure of eventualities and it is also known under other denominations like Aktionsart, actionality or inner aspect.

Evidentiality
Evidentiality is a grammatical category used to mark the source of information. Evidential markers typically distinguish between the following sources of information: (i) visual, (ii) sensory, (iii) inference, (iv) assumption, (v) reported and (vi) quotative.

Exclamative
An exclamative is a grammatical form specialized to convey surprise, denoting that all or some part of the utterance is unexpected, as in 'What a beautiful day!'. It is one of the four well-recognized sentence types, together with declaratives, interrogatives and imperatives. The corresponding exclamative force is specialized to convey a surprise. Declaratives are typically used to realize assertional speech acts. Unlike the other assertions, questions or commands, exclamations are expressive speech acts that are not used to ask the speaker to do something.

Exhortative
An exhortative construction is a construction used to express an order or an invitation including other participants other than the addressee, and typically the first and third person ('Let us go!').

Existential clause
An existential clause is a clause that refers to the existence or presence of something. Examples in English include the sentences 'There is bread in the kitchen' and 'There are three pencils on the desk'. Many languages form existential clauses without any particular marker, simply using forms of the normal copula, the subject being the noun (phrase) referring to the thing whose existence is asserted.

Expressive meaning
Expressive meaning is the meaning that is conveyed but not actually said, i.e. expressive meaning is typically due to some kind of pragmatic enrichment. Expressive meaning does not contribute to the truth-conditional meaning of an utterance.

Extended exponence
Extended exponence is a concept related to morphology whereby two markers occurring in different places in a word or phrase belong to the same morpheme; i.e. two separate units realizing a single function.

Extraction
Extraction refers to any syntactic operation responsible for the displacement of a word or a constituent from the position within a larger constituent where it is interpreted. For example, we can say that 'who' is extracted from the object position of the embedded clause in 'Who do you think Ada will call?'.

Extraposition
Extraposition is a mechanism of syntax altering word order in such a manner that a relatively "heavy" constituent appears in a position other than its canonical position, usually to the right. The relative clause 'which was addressed to Ada' is extraposed in the following sentence: 'A letter arrived yesterday which was addressed to Ada'.

Fingerspelling
Fingerspelling refers to the use of handshapes from the manual alphabet to represent (part of) a word, often because no sign exists for the concept; in fingerspelled sequences certain reduction and assimilation phenomena may occur.

Finite clause
A finite clause is a clause with a finite verb.

Floating quantifier
A floating quantifier is a quantifier that is not immediately adjacent to the NP it quantifies. French 'tous' (all) in 'les étudiants ont tous lu ce livre' (the students have all read this book) vs 'Tous les étudiants ont lu ce livre' (all the students have read this book) is an example.

Focus
A focus is an item that is presented as a new piece of information in the context of utterance. Entire sentences can be a focus, for example when they are used as opening lines in a conversation. In other cases, only a part of the sentence is new information, for example the constituent War and Peace is a focus in the following question-answer pair: "Which book did you read? I read War and Peace". Focus can be contrastive or emphatic, as the constituent Anna Karenina in the sentence "I am not reading War and Peace, I am reading ANNA KARENINA".

Free relative
A free relative clause is a relative clause not containing any (overt) antecedent, or head, as 'what you will read' in 'I will read what you will read'. In many languages, free relatives are introduced by a wh-element, as 'what' in the English example.

Functional element/category
A syntactic category that has grammatical meaning rather than lexical or encyclopedic meaning and that fulfills a syntactic function (e.g. negation, tense, number).

Gapping
Gapping is a type of ellipsis occurring in coordinate structures: some material that is present in one conjunct is omitted, i.e. 'gapped', from the other conjunct. The gapped material usually contains a finite verb, as in 'Nico plays the piano and Phil the trumpet'.

Gender
Gender is a grammatical (morphosyntactic) category that classifies nouns in terms of their (real or assumed) semantically shared properties in some languages; in others, the classification can be somewhat arbitrary.

Gloss
Explanation/rendering of a morpheme or word in a text by means of providing a literal translation in another language (usually English).

Grammatical function
Grammatical function refers to the syntactic role of a constituent in a given syntactic structure, such as subject or object. It is independent from the category of that given constituent and rather depends on its position in the structure.

Grammatical word
A grammatical word is a free form composed of a root and morphosyntactic features (inflection), which enables it to be used in a syntactic context; the morphosyntactic features can have overt expressions, or they can be phonologically null.

Grammaticality judgment
A grammaticality judgment is a metalinguistic assessment of the acceptability of a given utterance by a native speaker. Grammaticality judgments are typically used in linguistic research to gather negative evidence about what the grammar cannot generate, alongside with what is actually produced.

Grammaticalization
Grammaticalization refers to a process by which an independent lexical form diachronically develops into a free or bound functional (grammatical) element; e.g. in English development of future tense marker from the verb go.

Head of a word
The head of a word is the element which provides the label for the categorial status of a word or compound, thus determining whether it is a noun, verb etc. The concept of head presupposes asymmetrical (head-complement or head-modifier) structures.

Headedness
Headedness is the property that distinguishes symmetrical from asymmetrical constructions in morphology, used usually in compounding. Symmetrical constructions are usually considered headless, while asymmetrical constructions have a syntactic head (and a complement or modifier).

Homonym
Two or more words that are phonologically identical but have different meanings, causing lexical ambiguity.

Iconicity
Iconicity implies a non-arbitrary (motivated) relation between form and meaning, i.e. a phonological form reflects in some way the assumed visual (or auditory) characteristics of the entity or event it refers to; the form of the category/construction is then iconic.

Illocutionary force
The illocutionary force of an utterance depends on the speaker's intention in producing that utterance and the corresponding syntactic structures he/she uses to reach this goal. Declarative, interrogative, imperative and exclamative sentences are linguistic structures that are typically used to perform the illocutionary acts of making an assertion, eliciting information from the addressee, eliciting a behavior from the addressee and conveying a surprise.

Imperative
An imperative is a grammatical form that is specialized to elicit a (possibly non-linguistic) behavior from the addressee, as in 'Go away!'. It is one of the four well-recognized sentence types, along with declaratives, interrogatives and exclamatives. The corresponding imperative force is specialized to elicit a specific behavior of the addressee. Imperatives are typically used to realize commands or requests.

Impersonal verb
An impersonal verb is a verb whose argument structure does not include an external argument. For example, 'seem' in 'It seems that Ada is growing' does not assign any interpretation to 'it', which is a pure place holder, or expletive subject.

Implicature
Implicatures are context-dependent pragmatic aspects of the meaning of an utterance that do not contribute to the truth-conditional meaning of an utterance (what is said) but to the pragmatic meaning of this utterance (what is meant). Conversational implicatures are calculated on the basis of conversational maxims.

Incorporation
A complex verb formed by the syntactic combination of a verb with a noun (noun incorporation) or another verb; in sign languages often used for the combination of a verb and a classifier or of a noun and a numeral (numeral incorporation).

Indefinite pronoun
An indefinite pronoun is a pronoun that stands for an entity without specifying any grammatical (morphosyntactic) features such as number (e.g. someone in English).

Indirect question
An indirect question is a question, or interrogative, sitting in an embedded position, as 'when she should leave' in 'Ada asked me when she should leave'. An indirect question is typically embedded under a declarative.

Inflection
Inflection is a type of word formation which is to some extent dependent on a syntactic structure and involves morphosyntactic features such as e.g. person, number, and tense.

Information structure
The term information structure refers to the way in which information is packaged within a sentence. For example, the information conveyed by an utterance can be divided in old vs. new information and within a sentence it is possible to identify a constituent that is a topic and a constituent that is focus.

Initialization
Initialization is a sign language-specific type of word formation (compounding) whereby the handshape of a lexeme is the handshape of the manual alphabet representing the first letter of the corresponding word in the spoken language (e.g. the sign lemonade with a C-handshape).

Interrogative
The term interrogative refers to a grammatical form that is specialized to elicit information from the addressee, as in 'What have you done?', or to report a doubt or a similar attitude towards a given propositional content, as in 'I wonder what you did'. The corresponding interrogative force is specialized to elicit information from the addressee. Interrogatives are typically used to realize a question.

Intonation
Intonation refers to the totality of the prosodic phenomena that accompany the segmental part of strings (i.e. stress, pitch, and pause), marked mostly through non-manual articulations (such as facial expressions) in sign languages.

Intransitive verb
An intransitive verb is a verb that only takes one argument, as 'telephone' and 'arrive'. Intransitive verbs can be distinguished between unaccusatives, that only take an internal argument, such as 'arrive', and unergatives, whose only argument is the external argument, such as 'telephone'.

Ipsilateral
Ipsilateral refers to a location/area on the side of the active articulator.

Irreversible predicate
An irreversible predicate is a predicate that selects for two arguments associated with different semantic features, such as animacy. For example, typically 'eat' is an irreversible predicate, because its external argument is animate and its internal argument is inanimate. Only 'Ada eats a salad' is a meaningful sentence, while the reverse, 'A salad eats Ada' is semantically odd. Irreversible predicates are opposed to reversible predicates.

Isomorphic
The term isomorphic refers to the equivalence between the values of two sets of entities, rules etc.; e.g. in isomorphic use of space, signs are produced in a spatial configuration that corresponds to (i.e. is isomorphic with) a real-world configuration.

Juxtaposition
Juxtaposition is a kind of coordination not involving any overt conjunction, such as and, or, but or the like. Two constituents that are juxtaposed usually belong to the same syntactic category and perform the same grammatical function.

Layering/layer
In sign language linguistics, layering refers to the simultaneous (i.e. layered) use of various manual and non-manual articulators, e.g. a string of signs accompanied by a body lean, a head movement, and a specific eyebrow position.

Lexeme
A lexeme is a (semi-)abstract unit of meaning which corresponds to the basic forms in the lexicon; the actual realization of these units in language use are called 'word forms' (or sometimes simply 'words').

Lexical item
A lexical item is any item that is part of the vocabulary of a particular language, and that has to be learned in order for the language to be used.

Lexicalization
Lexicalization refers to the adoption of a particular form into the lexicon of a language; the form can be a completely novel form, or might be based on previously existing items.

Lexicon
The lexicon is the mental repository of all the vocabulary items of a language.

Loan sign
A loan sign is a sign that is of foreign origin, influenced by the spoken language or taken from another sign language.

Local lexicalization
Reduction of a fingerspelled sequence that is repeatedly used within a discourse; the phonological changes (e.g. dropping of letters, creation of movement contour) are characteristic of lexicalization.

Locus
A locus is a point in space used for grammatical purposes (e.g. pronominalization, agreement); it either is the actual location of a present discourse referent or an arbitrary location established by means of pointing or some other strategy.

Main clause
The main clause of a sentence, also called the independent clause, is a clause that is syntactically and semantically autonomous. It is thus opposed to the subordinate clause, which is syntactically and semantically dependent on the main clause.

Mass noun
A mass noun is a noun that does not usually appear in the plural and that cannot combine with numerals like three; however, it may combine with quantity expression like much (e.g. rice, milk).

Measure phrase
Measure phrases are constructions containing a noun referring to a measure of time, capacity, weight, length, temperature, currency. For example 'five months' in 'I will leave in five months', or '4 kilos' in 'I bought four kilos of strawberries'.

Metaphor
Metaphor is a general cognitive mechanism, which is important for the constitution of meaning of many expressions in everyday language. In a mataphor, two different concepts can be mapped on each other and one (typically abstract) concept is being understood through the other (typically more concrete) concept.

Metonymy
In a metonymy, one entity stands for another related entity such as a part (face) for a whole (person), a writer for his writing, a place (Paris) for an institution (French government).

Minimal pair
Two lexemes that differ from each other only in terms of a single distinctive feature, a single phoneme in spoken languages (e.g. bat and matt in English) or a single parameter in sign languages.

Modal particle
A modal particle is a particle that expresses (logical/semantic) modality (e.g. doch, ja, etc., in German).

Modal verb
A modal verb is a verb – mostly an auxiliary – that expresses (logical/semantic) modality (e.g. the verbs can, must, etc., in English).

Modality
A functional feature that indicates the speaker's level of commitment to the actuality of an event, or its desirability, necessity, possibility, etc.

Modality differences
Differences between signed and spoken languages that are due to or related to the difference in communication channel (visual-gestural vs. oral-auditive).

Morpheme
A morpheme is the smallest linguistic unit that bears meaning; it can be free (i.e. standing on its own) or bound (i.e. morphologically dependent on a stem/base and unable to be used on its own).

Morphosyntactic feature
Morphosyntactic features (also called grammatical features) are the categories of declension and conjugation (e.g. number, tense, etc.) which carry grammatical information and enable a word to be used in a particular syntactic context.

Mouth gesture
A mouth gesture is a configuration of the mouth that may accompany a sign or signs and that is not related to a word of the surrounding spoken language.

Mouthing
A mouthing is the (mostly silent) articulation of (a part of) a word from the surrounding spoken language that is either related to the sign it accompanies or specifies its meaning; occasionally, a mouthing may spread over a string of signs.

Nativization
Nativization implies the adoption of a foreign word into the native lexicon such that it conforms fully to the native phonology.

Negation
Negation is a semantic notion which is encoded by dedicated morphemes. Negation systematically changes the meaning of expressions by introducing various kinds of oppositions. Negating a proposition has the effect of reversing its truth value, i.e. of the two clauses Tim is at home and Tim is not at home, only one can be true. By contrast, constituent negation only affects the constituent in the scope of negation

Negative suppletion
Negative suppletion refers to a process whereby a negative morpheme is phonologically different from its affirmative form.

Neologism
A word (sign) or phrase that is newly formed, usually for naming new objects or states of affairs.

Neutral word order
Every language has a neutral word order, an ordering of main constituents that is pragmatically neutral and syntactically unmarked. Typically, the neutral word order for a given language is established following the following criteria: it corresponds to the ordering of constituents in declarative main clauses; both the subject and the object are nominal; it is pragmatically neutral; no element is emphatic or topicalized.

Non-concatenative morphology
The part of morphology that is about non-affixal word formation processes (such as stem modifications or templatic morphology).

Non-dominant hand
The non-dominant hand is the non-preferred hand of a signer, i.e. the hand s/he would normally only use in the articulation of two-handed signs.

Non-finite clause
A non-finite clause is a dependent clause whose verb is non-finite. Many languages can form non-finite clauses with infinitives, participles and gerunds. Like any embedded clause, a non-finite clause depends on another clause in the sentence.

Non-manual (marker)
A non-manual marker is a lexical or information-bearing unit which is expressed by articulators other than the hands; non-manual markers can have phonological, morphological, syntactic, and prosodic functions.

Non-native lexicon
The non-native lexicon is the repository (mental dictionary) of the forms that are borrowed from other languages and, in the case of sign languages, from co-speech gesture.

Number
An inflectional feature (functional category) that indicates whether the an expression refers to a single entity or to more than one entities. The most common values of the category number are singular and plural, but intermediate values such as dual and paucal also exist.

Numeral
The term ‘numeral’ indicates an item specifying the number of the entities referred to by a noun.
Numerals can be classified into three main categories: cardinals (which answer the question ‘how many?'), ordinals (which answer the question 'which in order?'), and distributive numerals (which answer the question 'how many each?').

Numeral incorporation
Under numeral incorporation, a polymorphic form (a compound) is created by simultaneous the combination of a numeral and a syntactically adjacent noun.

Parameter
Parameters are the phonological components (building blocks) of a sign: handshape, orientation, location, movement, and non-manuals.

Particle
The term particle is typically used for items that cannot be inflected (e.g. conjunctions), but it is also applied to formally dependent items (e.g. clitics) and functionally dependent items (e.g. adpositions and auxiliaries).

Parts of speech
The lexical and functional categories that are the building blocks of syntax: verb, noun, adverb, adjective, conjunction, etc. (see also syntactic category).

Passive
In a passive construction the patient (or theme) argument of a transitive or a ditransitive verb is in the subject position, the agent argument is absent or expressed optionally, and the verb or the verb phrase is marked in a special way.

Personal pronoun
Personal pronouns are pronouns that are associated primarily with a particular grammatical person – first person (as I), second person (as you), or third person (as he, she, it). Personal pronouns may also take different forms depending on number (usually singular or plural), natural gender, case, and formality.

Path movement
Path movement refers to a movement of the whole hand, be it in neutral signing space or on the signer's body.

Perspective
Perspective refers to the viewpoint from which an event is described. The event can be described from an external viewpoint (observer or narrator perspective) or from an internal viewpoint (character perspective).

Plain verb
A sign language verb that cannot be spatially modified to agree with (indicate) one or more of its arguments; plain verbs contrast with agreement verbs and a spatial verbs.

Plural
One of the values of the category number, indicating that there is more than one of an entity.

Polar interrogative
Polar interrogatives are sometimes called yes/no interrogatives because they ask whether a certain state of affairs holds or not, so they are naturally answered by 'yes' or 'no'. A direct polar interrogative in English is 'Are you sick?' while an indirect polar interrogative in English is the embedded clause in 'I wonder whether you are sick'.

Politeness
The linguistic expression of the intention of a speaker to save the face of the addressee (or some other person) in communicative interaction. To express his/her intention, the speaker uses various linguistic strategies.

Possession
Possession can be viewed as the realizations of a – typical asymmetric - association or relationship between two referents. Possession comprises kinship relations, whole-part relations, ownership relations and more general associations beween possessor and possessum.

Possessive
A possessive construction is typically a noun phrase expressing a possession. It is usually articulated into the possessor (someone who possesses something) and the possessed (often referred to as possessum or possessee as well).

Postposition
See adposition

Predicate
In traditional grammaticography, a predicate combines with a subject to form a sentence, and ascribes a property to the subject referent (e.g. 'Socrates' is the subject in the sentence 'Socrates is mortal' and 'is mortal' is the predicate). Predicates combine with a certain number of dependents or participants in order to express a complete predication to refer to a particular event or situation.

Preposition
See adposition.

Presupposition
A presupposition of an utterance is some additional information that the speaker or signer assumes (or acts as if he/she assumes) in order for the utterance to be meaningful in the current context. In the sentence 'Peter stopped smoking', the use of the verb stop presupposes that Peter used to smoke.

Pronoun
A syntactic category that takes the place of a noun phrase (e.g. English I, him, mine, etc.) Personal pronouns are pronouns that are associated primarily with a particular grammatical person – first person (as I), second person (as you), or third person (as he, she, it). Personal pronouns may also take different forms depending on number (usually singular or plural), natural gender, case, and formality. Semantically, pronouns are used as cohesive devises to establish co-reference between the referent of the pronoun and the referent of its antecedent.

Proper noun
A subgroup of the syntactic category noun; proper nouns denote individuals (e.g. persons: Noam Chomsky, places: Europe).

Prosodic word
A prosodic unit that consists of at least one syllable and that may or may not be a lexical word; cliticization or compounding may yield a prosodic word.

Prosody
Elements of speech or signing that determine how we say what we say, e.g. the pauses, the prominent parts, the rhythmic chunks, tones, etc.

Purpose clause
Purpose clauses are subordinate clauses expressing the purpose of the event expressed by the main clause, as in 'We stopped driving to work in order to save money'.

Quantifier
A syntactic category that indicates quantity (excluding numerals), e.g. some, many, never. Semantically, quantifiers are operators that quantify over a set of individuals, with different interpretations depending on the meaning oft he quantifier.

Raising verb
Raising constructions involve the movement of an argument from an embedded or subordinate clause to a matrix or main clause; in other words, a raising predicate/verb appears with a syntactic argument that is not its semantic argument, but is rather the semantic argument of an embedded predicate. An example of raising verb in English is 'seem', as in 'Ada seems to be happy'.

Reason clause
Reason clauses are subordinate clauses expressing a reason for the event expressed by the main clause, as in 'I called you because I missed you'.

Reduplication
Under reduplication, a morphological process is realized by repeating (part of) a stem.

Reference
Reference is the symbolic relationship between a linguistic expression and a concrete or abstract entity that it represents. The reference of an expression is the set of entities that the expression denotes.

Reference tracking
Reference tracking has to do with specifying the referents' identity in a text or discourse, i.e. with signaling which discourse referent we are talking about. Languages use various morphosyntactic devises such as pronouns or verbal agreement and pragmatic principles such as accessibility and salience to specify a referent in a discourse context.

Reflexive
A construction where the agent and another thematic role bearing argument refer to the same entity (e.g. He washes himself); a reflexive pronoun is a pronoun that refers to the agent (e.g. himself).

Register
The term register describes all kinds of linguistic variation that depends on the communicative situation or the specific purpose of communication.

Resumptive
A resumptive pronoun is a pronoun that refers back to a previously realized item within the same syntactic structure. Resumptive pronouns are often found in relative claus-

es, where they refer back to the relative pronoun, as in 'This is the toy that Ada thinks that we should definitely buy it'. The use of resumptive pronouns is marginal in standard English, but completely acceptable in colloquial varieties and in many languages.

Reversible predicate
A reversible predicate is a predicate that selects for two arguments that are not necessarily associated with different semantic features such as animacy. An example of a reversible predicate is 'kiss', because both its external argument and its internal argument are indistinct with respect to animacy. Both 'Ada kissed Nico', and 'Nico kissed Ada' are thus meaningful.

Role shift
A construction where a signer assumes the characteristics of another person/animal (the character) and linguistically marks his/her utterance accordingly, commonly by rotating his/her body towards the position in space associated to the character (and by other non-manual markers); role shift is typically used in narration to report someone else's utterance (attitude role shift, also called constructed discourse) or action (action role shift, also called constructed action).

Root
A root is the part of a word that carries the main conceptual meaning expressed by that word and that cannot be segmented any further.

Scope
Scope refers to the domain over which a certain feature – be it semantic or phonological – has an effect; e.g. negation can have semantic scope over part of a sentence or the whole sentence (sentential scope), and a non-manual marker like headshake can have scope (i.e. can extend) over part of a sentence or the whole sentence.

Secondary movement
Movements of the hand that are not path movements; articulator-internal movements: handshape changes, orientation changes, and hand-internal movements like finger wiggling.

Secondary predication
A secondary predicate is an expression that attributes a property to a nominal phrase (that can be the subject or another argument of the main verb) but it is not the main predicate of the clause. In 'The boys arrived home exhausted', for example, the underlined element expresses a secondary predication on the main subject.

Sentence
A sentence is a unit in which words are grammatically linked to make a statement or to describe something (typically via a declarative sentence), to express a command (typically via an imperative sentence), to elicit information from an addressee (typically via an interrogative sentence) or to convey surprise (typically via an exclamative sentence). The typical sentence contains at least a predicative nucleus consisting of a subject and of a predicate (for example, in "John is smart" the property of being smart is predicated of John and in "Mary thinks that John is smart" the property of thinking that John is smart is predicated of Mary). However, there can be elliptical sentences with a minimal structure.

Serial verb construction
The serial verb construction, also known as (verb) serialization or verb stacking, is a syntactic phenomenon by which two or more verbs or verb phrases are put together in a single clause. Serial verb constructions are often described as coding a single event.

Shared sign language
A sign language that emerged in a village community, due to an increased likelihood of deafness; often a considerable proportion of the hearing population also knows the sign language (also known as village sign language or rural sign language).

Signing space
Space in front of the signer that plays a role at different linguistic levels: phonology (location specification of lexical signs), morphology (e.g. agreement), semantics (e.g. topographic descriptions), pragmatics (e.g. reference tracking, contrast).

Simple movement
A simple movement is a movement that consists of a change in only one phonological parameter (e.g. location or orientation).

Simultaneity
The combined expression of two (or more) signs – be they manually or non-manually articulated – at the same time (by the same person).

Size-and-Shape-Specifier (SASS)
A Size-and-Shape-Specifier is a classifier(-like) item that expresses the size and shape of an entity, usually by outlining its boundaries.

Sluicing
Sluicing is an ellipsis phenomenon which elides everything from a direct or indirect question except the question word, as in 'Ada will call someone, but I don't know who'.

Small clause
A small clause is a construction that has the semantics of a clause, with its typical subject-predicate divide, but it lacks either a verb or the markers of (verbal) inflection typically associated withfinite clauses. An example is 'Ada smarter' in 'I consider Ada smarter'.

Spatial agreement
Sign languages have the option of exploiting space for agreement: the sign encoding the lexical verb is modified to include agreement with the locus in space associated with the argument(s) of the verb. Typically, the orientation and the direction of movement is modified and oriented towards the point in space associated with the external argument, the internal argument or both. Not all verbs agree in space.

Spatial verb
A verb that can be spatially modified to indicate the locative source and/or locative goal of an event, e.g. WALK (from a to b), PUT-DOWN.

Specificity
Indefinite noun phrases can specific and non-specific. An indefinite is specific when the signer, but not the addressee, knows the referent of the noun phrase. An indefinite is non-specific indefinite when neither the signer nor the addressee know its referent.

Speech act
A speech act is a linguistic act that is performed by a speaker while uttering a sentence. Speech acts can either be explicit performative or implicit performative and they are typically performed to make an assertion, a question, a command or to convey surprise.

Spreading domain
A spreading domain is a prosodic domain over which a manual or non-manual articulation is extended.

Stem
A stem (also called a base) is the morphological unit to which inflection and derivation applies.

Stem modification
A stem modification (also called stem-internal change or base modification) is a word formation process which affects the phonological form of the stem (e.g. English sing – sang – sung); stem modification may combine with affixation.

Subordination
Subordination is a principle of hierarchical organization of linguistic constituents. More precisely, the constituent A is said to be subordinate to the constituent B if A depends on B.

Subordination conjunction
See complementizer.

Suppletion
Suppletion refers to a word form which is associated with another form but has a completely or partially different phonological form, also called base allomorphy (e.g. go – went and bad – worse in English).

Suprasegmental features
Phonological or prosodic features that associate with the segmental layer of a word/sign; e.g. tone in spoken languages, non-manual features in sign languages; suprasegmental features constitute a layer on top of the segmental layer.

Syllable
A prosodic unit that is composed of a sequence of segments and that is the domain for stress assignment; in spoken languages, a syllable consists minimally of a vowel, in sign languages minimally of a movement.

Syntactic category
Building blocks of syntax; e.g. lexical categories such as noun, verb, etc., functional categories such as tense, number, etc., and phrasal categories such as Noun Phrase, Tense Phrase, etc.)

Telic
Telic eventualities are conceptualized as involving a change of state that amounts to the end point of the event described by the predicate.

Temporal clause
A temporal clause is a type of adverbial clause expressing a temporal relationship between two clauses. The time of the event in the adverbial clause can be before, after or simultaneous with the time of the event in the main clause.

Tense
Tense is a morphosyntactic category that refers to the reference time of an event with respect to utterance time. The reference time can either be identical to the utterance time, precede the utterance time (past) or be located after the utterance time (future).

Thematic role
Thematic roles encode the general semantic interpretation of an argument as a specific participant in an event/action described by the predicate. Typical thematic roles are agent, stimulus, experiencer, patient, theme, benefactive, recipient or instrument.

Topic
If the content provided by the sentence can be divided in old information and new information, a topic is the constituent that the rest of the sentence talks about. A topic can be a constituent familiar from the previous sentence but it can be a new argument of conversation. The latter case involves so-called topic shift and is a way to switch to another topic in discourse.

Transitional movement
A movement that is phonetically required to move the hand from the end point of one sign to the beginning point of the next sign, i.e. a movement that is not part of the lexical specification of either of the two adjacent signs.

Transitive
Refers to argument-taking properties of a verb; a transitive verb requires an internal and an external argument (e.g. visit, love).

Turn-taking
Turn-taking refers to a change in the role of discourse participants: from addressee to active speaker/signer, and vice versa; turn-taking signals are used to initiate turn-taking.

Unaccusative
An intransitive verb whose only argument is assigned the thematic role patient or theme instead of agent (e.g. melt, fall).

Unergative
An intransitive verb whose only argument is assigned the thematic role agent (e.g. run, swim).

Voice
The voice of a verb refers to the relation between the event expressed by the verb and the participants identified by its arguments. Typically, when the subject is the agent or

experiencer, the verb is in the active voice; when the subject is the patient or undergoer, the verb is said to be in the passive voice.

Wh-phrase
The wh-phrase is a constituent of a clause that is characterized as a question operator. A wh-phrase can be a word, as 'what' in 'What do you see ?' or an entire phrase, as 'which girl' in 'Which girl do you see?'.

Wh-question
Content interrogatives or wh-questions are used to ask the addressee to fill in some specific missing information and thus elicit a more elaborate answer than just 'yes' or 'no'. In many languages, they contain a specialized set of interrogative words or phrases that have a common morphological marking (what, which, who, why, when etc.). Since in English this marking is the morpheme wh-, these interrogative phrases are called wh-phrases, and content interrogatives are often called wh-questions.

Word
Word is a term which is sometimes used interchangeably with 'word form'; otherwise it has to be qualified by the terms 'phonological' and 'grammatical'.

Word form
A word form is the realization of a lexeme in a grammatical context; word forms carry grammatical information and are inflected for number, tense, etc.

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A Grammar of Italian Sign Language (LIS) is a comprehensive presentation of the grammatical properties of LIS. It has been conceived as a tool for students, teachers, interpreters, the Deaf community, researchers, linguists and whoever is interested in the study of LIS. It is one output of the Horizon 2020 SIGN-HUB project. It is composed of six Parts: Part 1 devoted to the social and historical background in which the language has developed, and five Parts covering the main properties of Phonology, Lexicon, Morphology, Syntax and Pragmatics. Thanks to the electronic format of the grammar, text and videos are highly interconnected and are designed to fit the description of a visual language.

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